
# INTERLOCKS IN LARGE SPANISH FIRMS: A DESCRIPTIVE ANALYSIS

Submitted by

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Sevilla, 2015

# ACKNOWLEDGEMENTS

This thesis is the result of my work at the Departamento de Dirección de Empresas y Marketing, Pablo de Olavide University, over the last few years. I would like to thank all of them for their help and support.

I would like to express my deepest gratitude to my supervisor, Professor Gloria Cuevas Rodríguez, who has provided me with excellent supervision and advice in the elaboration of this thesis. This thesis would not have happened if it wasn't for her comments, suggestions, encouragement, and help. Thank you.

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# CHAPTER 1: INTRODUCTION

The relevance of the study of corporate governance cannot be underestimated. Firms need to be guided, controlled, and directed if they are to achieve their goals. Firms have to face numerous stakeholders, which range from creditors to suppliers, from employees to the government, from customers to special interest groups, and corporate governance balances the different needs, requirements, and claims stakeholders have. Any research that tries to understand and explain the processes within the firm will eventually be analysing some form of corporate governance such as monitoring managers, monitoring the board of directors, and remuneration. Most corporate governance studies focus on improving overall firm performance. One of the main factors analysed in corporate governance is the board of directors, which is going to be the focus of this dissertation. When a firm achieves its goals, it is the board of directors who are to be praised. If the firm does not achieve its goals or performance is below what was expected, it is the board of directors to blame. There is a link in everybody's mind between performance and the board of directors. This makes boards an extremely relevant factor to be analysed.

The majority of research in corporate governance uses agency theory (Fama and Jensen, 1983; Eisenhardt, 1989; Dalton et al., 1998; Rhoades et al., 2000; Daily et al., 2003; Hillman and Dalziel, 2003; Stenvenson and Radin, 2009; Dalziel et al., 2011); whereas there is growing trend of researchers who use resource dependence theory (Pfeffer and Salancik, 1978; Singh et al., 1986; Oliver, 1991; Pennings et al., 1998; Oliver and Holzinger, 2008). I posit one theory cannot explain all the processes boards go through and it is necessary a holistic framework since theories have limitations and therefore, we need to use several theories to be able to have a deeper understanding

of the internal processes in corporate governance in general and in board of directors in particular. Agency theory stresses the importance of monitoring as the means to reduce agency costs and improve firm performance. There must be monitoring since firms owners are not involved in the day to day activity of the firm, whereas managers are; which may lead to managers pursuing self interest goals. (Fama and Jensen, 1983; Dalziel et al., 2011) Board analysis has focused mainly on agency theory in the last years, in particular, board composition, insiders and outsiders; and board size, the number of members the board has. Even though monitoring management is highly relevant for the firm and it may lead to improved performance, this theory overlooks other functions boards have, in particular those related to resource dependence theory and social theory.

Resource dependence theory supports the idea of the firm being affected by external factors in the environment and that it needs resources from this environment to survive. Board members bring resources to the firm which in turn will be used to achieve specific goals. The resources firms have and how they manage them can lead to better firm performance and to achieve an advantage over competitors (Pennings et al., 1998; Oliver and Holzinger, 2008). This, the bottom line, is what makes resource dependence theory relevant. Firms want to succeed and in order to do so they need to be better than competitors and among the many resources firms have the board of directors is one of the critical ones. This dissertation will focus on former government officials and outsiders as resources firms can use to improve performance.

Social theory is another theory which in the last few years has also been used to better understand the processes both, within the firm as well as relationships outside the firm, which may help improve performance. Social capital is the people we know, contacts, through whom we receive opportunities to use our financial and human capital (Burt, 1992). It is not the person itself but those

he or she is related to the real source of his or her advantage (Portes, 1998). Social capital has four benefits related to resource dependence theory: *advise and counselling*, *provision of firm legitimacy*, *channels of communication* between the firm and external organisations, and it helps to *obtain resources outside the firm* (Pfeffer and Salancik, 1978; Hambrick and D'Aveni, 1992; Westphal, 1999; Hillman and Dalziel, 2003; Haynes and Hillman, 2010).

Interlocks are a concept closely related to social capital. An interlocking directorate occurs when the same person sits in two or more boards. When there are interlocks among firms, a network is created. A network represents the ties and relationships (or lack of them) among the different members of the network. Social networks are not natural phenomena, they are created by individuals through investment strategies oriented to group relations (Portes, 1998). Social capital and economic behaviour are so constrained with each other than studying them independently will lead to misunderstanding since economic behaviour is modified by social relationships (Granovetter, 1985). Interlocks are relevant because there is then a strategy to create these networks, and from the firm's point of view, this strategy may be used to achieve goals, such as access to better information (Acquaah, 2007), improving performance (Kim and Cannella, 2008), or political advantages (Lester et al., 2008). This is what makes social capital relevant when analysing corporate governance. Its goals include improving performance and political advantages.

Most previous studies have focused on analysing the board of directors from only one perspective, and therefore ignore reality. For example, agency theory focuses on the role of the board as an internal control mechanism, but does not acknowledge its role as *resource provider* or social links. Resource dependence theory focuses on the resources boards bring to the firm, but ignores the

monitoring or social functions. Social theory focuses on social links, but ignores monitoring or the resources brought by board members.

Using the theoretical approaches mentioned above, we provide a comprehensive framework that explains the function of board of directors. More explicitly, this dissertation will focus on two specific strategies. First, hiring former government officials to the board in order to obtain benefits which will lead to better firm performance; second, the importance of outsiders as a resource for the firm. Regarding the first strategy, former government officials are defined as elected national officials, including Prime Ministers, cabinet ministers, Members of Parliament, Senators, and Secretaries of State. Outsiders are non-managerial members of the firm and non-executive directors. I posit boards choose former government officials not because of their business expertise, not because of their expertise in specific areas, but because they have links with outside groups, in particular political parties, which helps firms to manipulate the political environment. I also posit firms, once actively involved in the political environment, they will continue to do so over time, and that large firms, due to more factors in the environments they face, will hire former government officials as board members to take advantage of their knowledge and political links outside the firm; that firms in highly regulated sectors will co-opt former government officials; and that firms with former government officials in their boards have better financial results than those firms without them. All these hypotheses are firmly rooted in resource dependence theory as well as social theory.

The second group of hypotheses focuses on analysing outsiders and their importance to the firm. While outsiders have mostly been analysed from agency point of view, that is, their main goal is to monitor management, I propose, based on resource dependence theory, they provide a valuable resource, interlocks, and further posit outsiders may increase financial performance. Outsider

analysis in the literature focuses on the monitoring function, but ignores their role as resource providers and social links. I posit board size is related to the number of interlocks the firm has; that it is outsiders who provide most of these interlocks and that a higher percentage of outsiders lead to better firm financial performance.

This dissertation analyses a number of characteristics board of directors have as well as why some members are chosen to be part of the selected group of directors in large stock trading firms in Spain. Board of directors, through interlocks, create networks. The main players in this networks will be analysed. At the same time, a group whose importance has increased in board of directors in the last decades, former government officials, will be analysed to better understand the reasons boards have to hire them.

This dissertation provides a number of contributions to the literature and practitioners. The findings in this dissertation are expected to enrich the pool of growing knowledge on the use of resource dependence theory, agency theory, and social capital by Spanish firms as a strategy by corporate boards for both scholars and practitioners. By using several theories to explain the processes within the firm both, scholars and practitioners can better understand why firms do what they do, and understand changes in the composition of board of directors. Understanding which resources board members bring to the firm and how those resources are to be used by the firm can, for example, help firms to profile the candidates they are to hire. If the firm needs better links with institutions and political parties former government officials can help build those bridges. It is important, according to resource dependence theory, to know which board members provide resources to firms, helping scholars and practitioners better understand, among other things, how firms select their board members. Resource dependence theory is used at a macro level, that is, the environment

is an external force which affects all aspects of the firm. At the same time, the firm needs resources from the environment to survive and improve performance. From agency theory point of view, management must be monitored to avoid agency costs. Agency theory is then the micro level of the firm. The link between the macro level, resource dependence theory, and the micro level, agency theory, is provided by the board of directors. Board's duty is twofold, on one hand they must monitor management, on the other hand, they must screen the environment to obtain resources for the firm. The main contribution of this dissertation relates to a better understanding of the mechanisms used corporate governance, in particular by boards, to improve performance in the firm. To do so, this dissertation uses a holistic approach, resource dependence theory along with agency theory and social theory. Theories have limitations and it is necessary to use several theories to be able to better understand the internal processes in corporate governance in general and in board of directors in particular.

The structure of this dissertation is as follow. In Chapter 2 I present the theoretical background and hypotheses using resource dependence theory, agency theory and social theory. Chapter 3 explains the methodology used, that is, sample, definitions, data collection, and statistical analysis; Chapter 4 presents the findings. Chapter 5 is an open discussion on the dissertation findings and finally, Chapter 6 explains the limitations and provides ideas for future research.

# CHAPTER 2: THEORETICAL BACKGROUND AND HYPOTHESES



## 2.1 Introduction

"We define governance as the determination of the broad uses to which organizational resources will be deployed and the resolution of conflicts among the myriad participants in organizations "(Daily et al., 2003: 371). Even thought the majority of research in corporate governance uses agency theory, in the last few years a multitheoretic approach is used to complement this theory, for example, resource dependence theory, based on the resources directors bring; or stewardship theory, introducing mechanisms to reduce agency loss. Overall, we find that board of directors is the most analysed mechanism in governance (Daily et al., 2003).

Boards of directors are one of the many resources firms have and they serve two important functions. On one hand, they monitor management on behalf of shareholder and, on the other hand,

they provide resources to the firm (Hillman and Dalziel, 2003; Stenvenson and Radin, 2009). Different theories will emphasise either one of these functions. For example, agency theory (Fama and Jensen, 1983) stresses the importance of monitoring as the means to reduce agency costs and improve firm performance. Whereas resource dependence theory supports the idea of the firm being affected by external factors in the environment and that it needs resources from this environment to survive (Pfeffer and Salancik, 1978). At the same time, if those resources are valuable and difficult to imitate, the firm may gain a competitive advantage over its competitors (Hitt and Duane, 2002).

These two theories, resource dependence theory and agency theory, focus on two different roles boards have. As Fracassi and Tate (2012) indicate "A well-functioning board of directors provides both valuable advice to management and a check on its policies. An effective director should not just "rubber stamp" management's actions, but should take a contrarian opinion when management's proposals are not in the interest of the firm's shareholders." (Fracassi and Tate, 2012: 187). One general theory cannot explain all the processes within the firm since all theories have some limitations. For example, agency theory "predictions are not always consistent and findings are mixed" (Dalziel et al., 2011: 1220). In this dissertation the general background of resource dependence theory, that is, firms need external resources and the procurement of these resources is vital for a firm's survival, as well as other theories, agency and social theory, in order to have a better understanding of some of the processes firms go through. The intention is to partially integrate these theories to improve our knowledge of the actions taken by firms.

Next, the three main theories used in this thesis, resource dependence theory, agency theory, and social theory, will be reviewed to be followed by an analysis of the boards based on these theories.

## 2.2 Resource dependence theory and agency theory

Resource dependence theory will stress the importance of providing resources as the main function boards have (Pfeffer and Salancik, 1978). Grant (1991) lists six categories for resources: *financial*, *physical*, *technological*, *reputation*, *organisational*, and *human*. Board members bring resources to the firm which in turn will be used to achieve specific goals. "When an organization appoints an individual to a board, it expects the individual will come to support the organization, will concern himself with its problems, will variably present it to others, and will try to aid it" (Pfeffer and Salancik, 1978: 163). There are also a number of benefits with the new appointee: lower uncertainty (Pfeffer, 1972), increased legitimacy (Pfeffer and Salancik, 1978), lower transaction costs (Williamson, 1984), better advice (Mintzberg, 1983; Lorsch and MacIver, 1989), and better access to capital (Mizruchi and Stearns, 1988). This theory emphasises that firms must face demands from different external actors and therefore, the firm needs to adapt to uncertainty in the environment by either manipulate it or try to influence it to obtain critical resources (Pfeffer and Salancik, 1978; Singh et al., 1986; Oliver, 1991). A number of studies have proven that changes in the environment cause changes in corporate strategy (Hillman et al., 2001). That is, firms respond to changes in their environments. But firms are not always passive. Some firms, very large ones in particular, can use a number of mechanisms to try to change the environment for their own benefit.

Resource dependence theory proposes that boards are to manage external dependencies, help reducing environmental uncertainty and the transaction costs associated with environmental interdependency. If firms want to survive they must cope with environmental uncertainty (Hillman et al., 2000), defined as "the degree to which future states of the world cannot be anticipated and accurately predicted" (Pfeffer and Salancik, 1978: 67). Furthermore, as Pennings et al. (1998) show,

the resources firms have and how they manage them can lead to better firm performance. But it is not enough that the firm has specific resources which differentiates it from other firms. It must also be able to use those resources to achieve an advantage over competitors (Oliver and Holzinger, 2008). "In short, resource-based theory focuses on understanding the link between valuable, rare, and costly-to-imitate (idiosyncratic) firm resources, firm performance, and sustained competitive advantage. That is, in what ways can firms acquire ... resource-based rents through the possession of valuable, rare, and inimitable resources" (McWilliams et al., 2002: 713).

According to agency theory, firm owners are not involved in all day to day activities in the firm. Managers, on the other hand, are. Ownership and control are separated in most large firms and this causes those who have control, managers or agents, to pursue self interested actions which may not benefit principals or owners (Dalton et al., 1998). "One party (the principal) delegates work to another (the agent), who performs that work" (Eisenhardt, 1989: 58). Agency theory focuses on two problems, the goals principals and agents have differ and it is expensive for the principal to supervise agents and their actions (Eisenhardt, 1989). Agency theory has two main lines of thought: *positivist*, which focuses on situations where principals and agents may have conflicting goals leading to governance mechanisms; and *principal-agent research*, which is "concerned with a general theory that can be applied to employer-employee" (Eisenhardt, 1989: 60).

Managers have the opportunity to pursue actions which will benefit them instead of the firm, causing what is called "*agency costs*". To avoid this conflict or situation, managers need to be monitored (Jensen and Meckling, 1976; Fama and Jensen, 1983; Eisenhardt, 1989; Dalton et al., 1998; Rhoades et al., 2000). The main contribution of agency theory is that it "reestablishes the importance of incentives and self-interest in organizational thinking" (Eisenhardt, 1989: 64). This

leads, among other things, to the importance of information and to performance based compensation. Therefore, one of the duties of the board is to monitor management and agency theory is based on the premise that management can be properly monitored (Rhoades et al., 2000). The monitoring activities mostly accepted by scholars are: *monitoring the CEO*, *monitoring strategy implementation*, *evaluating and rewarding the CEO and top managers of the firm*, and *planning CEO succession* (Hillman and Dalziel, 2003). Board's incentives are commonly used to enforce the monitoring function (Hillman and Dalziel, 2003).

The two main areas of research for the board of directors have been first, monitoring management; second, implementing strategy; and third, links with the external environment (Ruigrok et al., 2006). To do so, researchers focus their analysis on a number of characteristics all boards share, that is, their composition and their size.

### *2.2.1 Board analysis: composition of the board*

Following resource dependence theory and agency theory, directors have two functions: monitoring and resource providers. Scholars then try to analyse how directors fulfil these functions. A review of the recent literature related to board analysis shows that it has focused on board composition and board size (Pearce and Zahra, 1992; Johnson et al., 1996; Dalton et al., 1998; Filatotchev and Bishop, 2002; Boone et al., 2007; Coles et al., 2008; Chen et al., 2009). Board composition classifies board members as outsiders or insiders. Insiders are members of the board who also have a managerial role in the firm. Outsiders are non-managerial members of the firm and non-executive directors, and their functions include monitoring the CEO and management on behalf of shareholders and providing resources, such as knowledge and advice, to the firm (Combs et al.,

2007; Kor and Misangyi, 2008; Stenvenson and Radin, 2009). The ratio of outsiders to insiders has not yet found a "magical" number. Empirical results do not always match. As Stenvenson and Radin (2009) show, some authors have found evidence for inside directors increasing the economic performance of the firm and that outside directors are not always related to better performance. There is a long history of research in this area, board composition, in the U.S. which is now expanding to other regions and countries. That is, corporate governance practices are spreading using the Anglo-American model (Chizema and Kim, 2010; Chizema and Shinozawa, 2012).

There are a number of arguments in favour of boards being controlled by insiders. Insiders have in-depth knowledge about the firm, sector and industry; the day-to-day operations within the firm, and its processes. Insiders have a better knowledge and information about the firm and that helps them to better monitor management (Baysinger and Hoskisson, 1990; Daily and Schwenk, 1996) and studies have also found that insiders are associated with higher firm performance (Dalton et al., 1998). Other reasons to choose insiders over outsiders are, for example, norms of reciprocity may cause outside board members to feel obligated to support the CEO who was responsible for nominating them to a board (Westphal, 1999); outsiders cannot have as much knowledge of the company as insiders do (Westphal, 1999; Finkelstein and Mooney, 2003); no statistically significant relation between firm value and independence (Fracassi and Tate, 2012); managerial hegemony theory, which states that since managers control the information board members receive, outsiders become more dependent upon management and thus, less informed (Rhoades et al., 2000), and inside directors can provide advice and counsel which will increase the economic performance of firm (Westphal, 1999). Finally, many outside directors also serve in other boards. This causes the "*busyness effect*", which means serving on multiple boards overcommits an individual (Ferris et al., 2003; Adams et al., 2010). The busier the director the less effort and time he or she can devote to

the company and they are often inadequately prepared to participate in board meetings (Carpenter and Westphal, 2001; Adams et al., 2010).

However, outsiders may have external connections, which in some cases have been developed through multiple board appointments, overcoming the busyness effect. This is of importance since it helps firms by providing access to critical resources such as relevant and high-quality information, which reduces information asymmetries and helps initiate new business relationships (Haunschild and Miner, 1997; Musacchio, 2004; Kor and Sundaramurthy, 2009; Shropshire, 2010). On the other hand, there are also a number of studies which insist on the necessity of board independence. Outsiders bring different resources to the firm since they have different backgrounds, experiences, and expertise (Dalton et al., 1998; Rhoades et al., 2000; Kor and Misangyi, 2008). Inside directors expertise lies within the firm, whereas outside director expertise lies outside the firm (Hillman et al., 2000; Kor and Misangyi, 2008). Outside directors help prevent uncertainty by the boosting communication between the firm and stakeholders, their skills and experience, and the links they create with other firms (Pearce and Zahra, 1992). Inside directors may not be able or willing to monitor and evaluate CEOs and top management since they may be afraid of potential conflicts of interest. Ties with the CEO weaken the intensity of board monitoring (Dalton et al., 1998; Westphal, 1999; Rhoades et al., 2000; Fracassi and Tate, 2012) and these ties are stronger among inside directors. Outsiders bring experience, prestige and contacts which are necessary for the firm (Haniffa and Cooke, 2005). As for agency theory, links with the external environment reduce transaction costs associated with the firm's external linkages, for example, regulatory agencies (Hillman et al., 2000). Then, the role of outsiders in firm performance is not clear. Whereas “Outsiders are expected to be more vigilant than insiders because they are purportedly less dependent on the CEO and are the formal representatives of shareholders.” (Finkelstein and

Mooney, 2003: 101), we also find that "...outside directors are thought to engage in less vigilant monitoring and to exert less control over top managers with whom they have close personal ties." (Westphal, 1999: 7). Still, there is near consensus in the literature that effective boards will be composed of greater proportions of outside directors (Dalton et al., 1998), grounded largely in agency theory. Overall, the presumption is that outsiders will behave differently than insiders (Adams et al., 2010). The ratio of outsiders to insiders has no clear number. For example, as Rhoades et al., (2000) explain, when some boards tried to balance this ratio they failed to achieve the benefits of either outsider or insider dominated boards. However, since board members are a link to the external environment, when there are changes in the environment it follows there might also be changes in board structure, size and composition, in order to fulfil their main duties, that is monitoring and advice, and to address environmental uncertainties and dependencies (Pfeffer and Salancik, 1978; Hillman et al., 2000; Boone et al., 2007).

Nevertheless, the best example that outsiders are not a guarantee of success is provided by Finkelstein and Mooney (2003). They used data filed the previous year to the scandal and, as the following table shows, having a majority of outsiders in the board did not stop these firms from failing.

**Table 1. Percentage of outsiders in the boards of selected firms.**

| Firm | % of outsiders |
|---|---|
| Enron | 86% |
| WorldCom | 75% |
| Global Crossing | 73% |
| Qwest Communications | 64% |
| Tyco International | 73% |

Adapted from Finkelstein and Mooney (2003)

Outsiders are expected to be more vigilant than insiders because they do not share so many professional and social ties with the CEO (Finkelstein and Mooney, 2003). Despite the previous table, there is empirical support of outside directors and better profitability, higher returns on equity; and a positive relationship with firm performance (Dalton et al., 1998). Boards may turn to outsiders to enrich decision-making (Finkelstein and Mooney, 2003). During the actual economic crisis, governance reforms have mandated an increase in director independence to strengthen monitoring (Fracassi and Tate, 2012). More outside directors increase board involvement by raising the level of monitoring and control (Westphal, 1999). “Outside directorships are perceived to be valuable because they provide executives with prestige, visibility, and commercial contacts.” (Fich and Shivdasani, 2006: 693); better monitoring and advising can affect positively firms growth (Kor and Sundaramurthy, 2009); and empirical evidence shows a positive relationship between director’s prestige and firm performance (Certo et al., 2001).

### *2.2.2 Board analysis: size*

The other feature scholars analyse is board size, which is defined as the number of members the board has. Again, as with board composition, scholars do not fully agree on the "right" size for boards. For example, when boards have more than seven or eight members, they are less likely to be effective in their functions (Jensen, 1993). By contrast, according to Coles et al. (2008), either very small or very large boards are optimal; Boone et al. (2007) argue that high-growth firms will have smaller boards due to the high monitoring costs associated and that board size will increase with firm's growth; Ferris et al. (2003) provide evidence of large boards not being effective and that small boards can monitor management effectively. There is no clear answer to the right board size debate besides that one size does not fit all and that firm size affects board size. Different studies focus on different sectors and activities and their results prove that one board structure does not fit all firms. In general, larger boards may bring more experience and knowledge, and therefore, provide better advice to the firm (Ruigrok et al., 2006; Coles et al., 2008), but at the same time, larger boards are difficult to manage by CEOs, it may take them longer to reach agreements, and boards may have problems with the monitoring function.

### *2.2.3 Board effectiveness*

"People often question whether corporate boards matter because their day-to-day impact is difficult to observe. But when things go wrong, they can become the center of attention." (Adams et al., 2010: 59). The general rationale is that board of directors can influence firm outcomes (Dalton et al., 1998). There are a number of factors to consider when board effectiveness is analysed. Boards have functions and duties they must fulfil. Research in this area mostly analysed the relationship

between the insider to outsider ratio and firm's performance (Rhoades et al., 2000) and how different combinations of board composition (insider, outsider, affiliated, independent / interdependent) would improve firm performance. In this line, further research is needed to understand how different profiles of directors help to improve firm performance (Hillman et al., 2000).

Finkelstein and Mooney (2003) list five processes which are necessary for the board to be effective: *engage in constructive conflict*, *avoid destructive conflict*, *work together as a team*, *know the appropriate level of strategic involvement*, and *address decisions comprehensively*. Westphal (1999) uses the *collaboration model* as a link between board and firm performance. According to this model, "social ties may ultimately enhance firm performance by enabling boards to extend their involvement beyond decision control to decision management" (Westphal, 1999: 11). In his study he shows a positive relationship between board monitoring of CEOs, the level of advice and counsel, and firm performance. Kim and Cannella (2008) list three factors that make boards effective: *its ability to perform its service tasks effectively*, *its ability to work effectively as a group*, and *its ability to provide valuable resources or information from the external environment*. Oh et al. (2006) introduce the concept of *group social capital* "as the set of resources made available to a group through group members' social relationships within the social structure of the group itself, as well as in the broader formal and informal structure of the organization" (Oh et al., 2006: 570). According to them, an increase in group social capital resources will lead to greater effectiveness. Overall, according to Hillman and Dalziel (2003) there are two paths researchers follow to find a link between board of directors and firm performance. The most analysed path refers to *monitoring and incentives* and it is therefore agency theory; the second one is related to resource dependence theory where boards are "*providers*" of resources.

The relationship between board structure (size and composition) and firm financial performance is not clear with little consistency in results, which shows the importance of considering different theoretical approaches to explain this relationship (Dalton et al., 1998; Rhoades et al., 2000; Kim and Cannella, 2008), which is the aim of this dissertation since one theory cannot explain it all.

### *2.2.4 Former government officials and nonmarket strategies*

Social ties increase the provision of advice and counsel from outside directors on strategic issues since personal relationships between colleagues increases the level of advice-seeking behaviour (Westphal, 1999). The strategic choices managers make reflect their backgrounds and experience (Hambrick and Mason, 1984). Therefore, managers' social ties, contacts, and networks will in turn affect firms' strategic choices and performance (Peng and Luo, 2000). Board's monitoring function has been extensively analysed but there is less research into the strategic function boards have (Ruigrok et al., 2006). Resource dependence theory explains that the greater the environmental uncertainty, the more likely it is that firms will rely on managerial ties when entering exchange relationships (Pfeffer and Salancik, 1978). In this line of thought the political environment also implies some degree of uncertainty since firms cannot fully predict future political changes. It follows that boards will choose future members with strong external ties with the political environment to be able to minimise the effect changes in the political environment may have on the firm. That is, when selecting an outsider to the board, when the firm is politically active, it will choose a person with strong ties with this particular environment.

Following resource dependence theory (Pfeffer and Salancik, 1978) makes sense then that board will try to access valuable resources and use these resources to achieve its goals. When selecting directors with ties to important institutional players, firms can help create favourable environmental contexts (Kim and Cannella, 2008). Former government officials are defined as as elected national officials, including Prime Ministers, cabinet ministers, Members of Parliament, Senators, and Secretaries of State. They are a resource since they provide a link between the firm and the political environment. Relationships with governments are no longer viewed as a cost but as an opportunity. Therefore, the strategy is to hire former government officials as outsiders because they bring knowledge and, most important, links with the political environment, which in turn the firm can use for its own benefit. There is then a calculated strategy, hiring former government officials, who bring specific resources to the firm, which are used, in turn, to manipulate the political environment. As Oliver and Holzinger (2008) posit, this is because political environments have become more complex and influential, forcing firms, large firms in particular, to take action since the *free-rider* option is no longer effective enough. Free-riders are "firms that took no action and incurred no costs" (Lenway and Rehbein, 1991: 896) in strategic political management but reap the benefits as if they had done so. Overall, large firms have enough incentives to be politically active whereas smaller firms have incentives to be free riders (Schuler, 1996). By hiring former government officials firms become then proactive in their political environment.

Hillman et al. (2000) classify directors in three different groups: *business experts*, *support specialists*, and *community influentials*. *Business experts* serve on other large boards. They provide skills, knowledge, and communication channels with other firms, as well as an increase in firm's legitimacy. *Support specialists* lack general management experience but they provide expertise in specific areas, capital markets, law, insurance and public relations, of the firm and they do not form

the foundation on which the strategy is built. *Community influentials* have links with other firms, not including competitors or suppliers. The resources they supply do not stem from direct managerial experience but from knowledge, experience and connections to community groups and organisations. In this group Hillman et al. (2000) include former government officials. They provide valuable nonbusiness perspectives and they serve as vehicles of co-optation for the organisation.

The proposed hypothesis is directly related to Hillman et al., (2000) classification. Former government officials are not mainly chosen to participate in boards due to their educational background since in general they are not business experts. Former government officials are mainly chosen as board members because of their links with the community and, in particular, strong links with their former political party. "The division of the work of the board into committees represents a certain amount of horizontal differentiation within the board ... If organizational design is considered to facilitate efficiency and effectiveness in organizations, examination of board organization may yield fruitful insights about board functions and outcomes" (Valenti and Horner, 2010: 121). It makes sense then that board members should be appointed to committees where they can add value to these committees. This dissertation further proposes former government officials' educational background does not match the committees they are in. That is, they are not chosen as support specialists but as community influentials. The hypotheses state:

> ***$H_{1a}$:*** *Former government officials are, due to their educational background, community influentials*
>
> ***$H_{1b}$:*** *Former government officials' background does not match their committee activities.*

As Getz (1993) indicates, there are a number of benefits for organisations from hiring former government officials. Cooptation, that is the absorption of disruptive elements which can probably lead to favourable governmental action (Pfeffer, 1972; Mizruchi, 1996; Hillman et al., 1999; Kim and Cannella, 2008); legitimacy, the new board member may bring prestige and reputation to the organisation (Bazerman and Schoorman, 1983; Zucker, 1987; Mizruchi, 1996; Hillman et al., 1999; Hillman et al., 2000; Certo et al., 2001); legitimacy building (Suchman, 1995); reducing the likelihood of failure and increase survival (Hannan and Freeman, 1984; Baum and Oliver, 1991); advise and counsel (Westphal, 1999); better access to information (Mizruchi, 1996; Hillman et al., 1999) and a reduction in information uncertainty (Hillman et al., 1999) as well as concessions and privileges (Musacchio and Read, 2007); private information, gathered from personal contacts, and access to diverse skill sets (Uzzi and Dunlap, 2005), opposite to public information, which everyone has access to; help to bring change in institutions or influence political decisions (Hillman et al., 1999; Ingram and Clay, 2000); "increase overall market size, to gain advantage over rivals within the industry, to reduce the threat of new entrants, to reduce the threat of product substitution, and to increase bargaining power over suppliers and customers" (Shaffer et al., 2000: 129); to obtain competitive advantage (Clougherty, 2003); lowering the cost of dealing with government (Musacchio and Read, 2007); advice and counsel regarding the public policy (Hillman et al., 1999); helpful in acquiring resources on more favourable terms (Goodstein and Boeker, 1991; Hillman and Dalziel, 2003) valuable nonbusiness points of view (Hillman et al., 2000) and better financial performance (Hillman et al., 1999). All these benefits may encourage firms to become politically active and try to shape the political environment for their own interest.

The next hypothesis is related to board size and composition. Larger firms overall have larger boards (Ferris et al., 2003) since large firm size is associated with more complex operations and

environments (Dalton et al., 1998). As mentioned before, resource dependence theory (Pfeffer and Salancik, 1978) believes outside directors are a critical link to the external environment. "...one would expect that as the potential environmental pressures confronting the organization increased, the need for outside support would increase as well" (Pfeffer and Salancik, 1978: 168), which is true for larger firms since they have to face more complicated environments. Therefore, outsiders provide, among other things, information and personal links to outside groups which may help the firm to achieve its goals and to adapt, if necessary, to changes in the environment. Former government officials can provide valuable advice and counsel regarding the public policy environment of a firm, aid the firm with their knowledge of government procedures and their insight in predicting government actions, improve financial performance, create communication channels to existing government officials, provide valuable nonbusiness perspectives on specific issues, and reduce transaction costs (Hillman et al., 1999; Hillman et al., 2000; Peng and Luo, 2000; Agrawal and Knoeber, 2001; Hillman, 2005; Lester et al., 2008). Overall, it can be said these are all resources and it is in line with the resource dependency theory outlined by Pfeffer and Salancik (1978). The hypothesis states:

***$H_2$:*** *Larger firms will include more former government officials as outsiders.*

In other words, due to the complicated environments large firms face, not only outsiders will be a better choice for the board but also, former government officials are, among the different options among outsiders, the best bet due to their "influence" in the community.

Firms are interest driven (Oliver, 1991) and they strive for survival and benefits, that is, continued success (Dacin et al., 2007; Adams et al., 2010). Firms are not isolated even though "...traditional

strategy research has viewed firms as autonomous entities seeking to build resources and stake out market positions that lead to sustainable competitive advantage" (Gulati et al., 2000: 212). One of the most relevant factors in their environment is government. "Governmental entities have power over the opportunity sets faced by firms and shape their competitive environments" (Hillman et al., 1999: 67). Governments "set the rules of the game" (Rodriguez et al., 2005) and nearly every aspect of the business life is shaped by governments: policy, regulations, and laws (Cook and Barry, 1995; Hillman and Hitt, 1999; Lester et al., 2008). "The actual and potential impact of the government on business encourages firms to keep informed about government regulations, policies, and emerging public policy issues" (Hillman et al., 1999: 68). Not to forget that government intervention in business has increased in the last decades (McWilliams et al., 2002). It is understandable that organisations may want to change this political environment for their own purposes. Environmental uncertainty is the inability of a firm to accurately asses future states of the world or future changes in the external environment (Pfeffer and Salancik, 1978; Koka et al., 2006). When firms are able to modify legislation in their own favour they have a more possibilities to survive in environments clouded with uncertainty (Hillman et al., 1999).

"Strategic political management refers to the set of strategic actions that firms plan and enact for the purpose of maximising economic returns from the political environment" (Oliver and Holzinger, 2008: 496). Also known as corporate political activity (CPA) or *nonmarket strategies*, it implies shaping government policy favourably to the organisation (Hillman et al., 2004). CPA stands for corporate political action. These political strategies can be complements and substitutes for market strategies (Baron, 1995; Shaffer et al., 2000). They are based on the idea that firms must not simply react to policy decisions (Hillman et al., 1999). Nonmarket strategies may lead to, among other things, an increase in legitimacy and influence. It is difficult to quantify these effects on the firm

although they may affect firm performance (Hillman et al., 1999). On the other hand, market strategies aim to create value through economic performance (Baron, 1995). "The complete equilibrium includes both market and nonmarket competition, and hence the returns to market and nonmarket strategies are necessarily interrelated. To explore the synergies between market and nonmarket strategies, first note that there is no direct return to nonmarket strategies" (Baron, 1997: 337). Strategies are long term whereas tactics are short term and involve smaller commitment of resources (Hillman and Hitt, 1999). Furthermore, "...strategies of nonmarket participation can be grouped into those focusing on the provision of information and those focusing on the provision of politically valuable resources and support." (Baron, 2001: 48).

These strategies are not limited to one specific action since firms face different institutional controls, that is, "the means by which pressures are imposed on organisations" (Oliver, 1991: 168). As Schuler et al. (2002) indicate, different types of political behaviours can be followed at the same time. That is, the board chooses to involve the firm, through different strategies, in the political process to improve performance. Shaffer et al. (2000) show there is a positive relationship between nonmarket strategies and performance. The goal of these strategies is to influence political processes in such a way they will reflect firm's goals (Baysinger, 1984). There are examples of organisations involved in political activities in a number of countries besides the U.S., such as the European Union, Japan, South Korea, Kuwait, and Russia (Hillman et al., 2004). Also, there are different strategies firms may follow to influence the political environment, that is, firms can use different strategies to modify the environment (Kim and Cannella, 2008). The level of involvement itself, for example, is a strategy. But this is not the case everywhere, "in some countries, such as Sweden, Japan, and Germany, businesses formally participate in the public policy process. In many others, such as the United States, Canada, and Mexico, firms "compete" with a variety of other

interest groups informally to affect public policy" (Hillman and Hitt, 1999: 826). Spain, in this context, belongs to the second group.

Meznar and Nigh (1995) classify political activities into *buffering*, proactive political actions, resisting or controlling; and *bridging*, reactive political actions, that is, the firm adapts to policies. Moreover, organisations have to decide on whether to participate alone or collectively (Hillman and Hitt, 1999; Hillman et al., 2004). As Hillman and Hitt (1999) indicate that after a firm decides to become politically active, the next question is how are they going to do it. Oliver (1991) defines a number of strategies organisations may use to face government institutions. They are *acquiescence*, accede to institutional pressures; *compromise*, balance or bargain with external constituents; *avoid*, attempt to preclude the necessity of conformity; *defy*, resistance to institutional processes; and *manipulate*, active response to pressures. Manipulation is further divided into *co-opt*, *influence*, and *control*. When organisations hire former government officials, they engage in co-opt, that is, importing influential constituents. Moreover, firms don't limit themselves to only one specific strategy. They may use a combinations of strategies which may include, for example funding campaigns, mobilise constituencies or use lobbyists (Hillman and Hitt, 1999).

Modifying the political environment is not new to firms. They have always been involved in such activities but it has not been until recent years that this involvement has been studied. There are many examples of how firms have used these strategies in order to achieve competitive advantage. Controls on the use of child labour in Britain's textile industry (McWilliams et al., 2002) favouring large manufacturers; Intel lobbying in the U.S. to avoid antitrust litigation (Yoffie and Kwak, 2001) which turned to be good for the company but not so good the consumer; large organisations lobbying for expensive legislation (Solid Waste Disposal Act) which would drive small

organisations off the industry in the U.S. (McWilliams et al., 2002); the steel industry lobbied for an increase in tariffs, up to 30 percent, on steel imports in the U.S. (Bonardi et al., 2005), again, good for the companies involved but not so good the consumer; a positive relationship between firms making contributions to Democrats under the Clinton administration and foreign trade mission participation (Hillman et al., 2004); Lockheed Martin spending $55 million in lobbying in the U.S. since 1999 and winning $90 billion in defence contracts and Boeing's lobbying investment of $57 million and winning $81 billion in contracts (Miller, 2006); Wal-Mart proposed to increase the minimum wage in the U.S. (Bonardi et al., 2006) which caused competitors to increase their costs; and British Petroleum with a proactive political strategy in the 1990s leading to new regulation in the industry increasing the costs for its rivals (McWilliams et al., 2002). Most of these examples involve rising rivals' costs through either monopolising a resource that is necessary to competitors (resource dependence theory); differentiation, which leads to public recognition and high status; and the restricting the use of a resource by competitors (McWilliams et al., 2002). Rising rivals' costs, when the firm has a competitive advantage is good for business. But there are also not so successful stories, for example, the development of High Definition Television in the United States included political manoeuvring, alliance formation and disbanding, and technological change (Dowell et al., 2002).

Shaffer et al. (2000) found statistical evidence of how nonmarket strategies improve firm's performance. The benefits of nonmarket strategies spill over to other firms which end up being free riders, mostly small firms (Schuler, 1996). There are two options firms have. They can use individual action or they can push for collective action. Individual actions loads all the costs on one firm whereas in collective action the costs are shared by a number of firms (Hillman and Hitt, 1999). Collective actions have two types of benefits: *collective*, those that benefit all parties, and

*selective benefits*, those which benefit only those who participate. Financial cost is then the determining factor for firms to decide if they want to become politically active. Also, firms tend to lobby individually when they fear sensitive information may reach the general public or competitors (Figueiredo and Tiller, 2001). Overall, it can be said all these actions lead to "dynamic processes by which a firm influences or complies with its political environment for the purpose of generating future value or protecting the current value of the firm from future loss or erosion" (Oliver and Holzinger, 2008: 497).

When firms manage the political environment effectively they may achieve favourable subsidies, reduce threat of market entry, improve firm legitimacy, reduce threat of product substitutes, and increase market share (Oliver and Holzinger, 2008). Other contingency factors which may lead to political activity include firm size since it is large firms that have the resources to do so (Yoffie, 1987; Oliver and Holzinger, 2008). Size is important since it represents political as well as economic power (Hillman et al., 2004). Other factors include how often legislation changes (Oliver and Holzinger, 2008); the negative effects of a passive strategy when competitors engage in political action, the net impact on firm's competitive performance and strategy, firms are part of an industry strongly affected by public policies, firms are larger, have an international scope, political environments become more complex and influential, government is an important costumer, firms are more reliant on governmental decisions, and industry concentration, where concentrated industries tend to be more politically active (Agrawal and Knoeber, 2001; Schuler et al., 2002; Keim and Hillman, 2008; Oliver and Holzinger, 2008; Adams et al., 2010). It is important to understand that, overall, "government policies are not exogenous constraints that firms must take as given. In all democratic governments in the world, firms can play an active role in shaping public policy" (Keim and Hillman, 2008: 50). As Oliver and Holzinger (2008) show, firms may have a

number of reasons to get involved in political activity. These include to make their interests known to government, to gain collective or private benefits, to access resources from political institutions, to purchase government policy or secure government inaction, to reduce costs, to stop unwanted regulation, and to increase firm control and autonomy, or, as Keim and Hillman (2008) posit, rivals in the marketplace use political strategies to influence government policies, which, in turn, affects market opportunities.

One explanation for a number of firms following the same strategy can be found in imitation. Williamson et al. (2003) classify imitation in three groups: *frequency-based* imitation, when organisations imitate actions already taken by large numbers of other firms; *trait-based* imitation, firms imitate larger firms in their field because their behaviours are perceived as legitimate; and *outcome-based* imitation, where firms mimic practices because they are believed to have produced positive outcomes. Lieberman and Asaba (2006) give two categories of imitation: *information-based* theories, the believe that competitors may have better information; and *rivalry-based* theories, to maintain competitive parity. Overall, larger organisations are more likely to be imitated. Firms engage in political activities when they are highly dependent on government regulation and are large in size (Bonardi et al., 2005); when the political market is attractive (Bonardi et al., 2005), that is, firms perceive they may achieve their goals; when "information, access, influence, reduced uncertainty and transaction costs, etc." (Hillman et al., 1999: 67); when they can rise rivals' costs (McWilliams et al., 2002); and when there is some degree of economic motivation and institutional facilitation (Christensen, 1997).

Oliver (1991) lists a number of strategic responses firms may use to either adapt or change the environment. These strategies range from adherence to rules and regulations, known as *acquiesce*,

to trying to defy or *manipulate* institutions. There are advantages of *noncompliance*, which include autonomy over decision making and flexibility to permit continual adaptation as new contingencies arise. *Manipulation*, the most active response, pretends to control institutional pressures. It includes *co-op*, persuade an institutional constituent to join its board of directors; *influence*, modify values and criteria of acceptable practices or performance; and *controlling*, efforts to establish power and dominance over the external constituents.

Keim and Hillman (2008), in a similar study, list three possible responses to public policy: *passive reaction*, where managers react by adjusting their activities and plans to new rules and legislations post-hoc; *positive anticipation*, where managers monitor the formation of government policy to anticipate and adjust their strategic planning within the firm; and *proactive public policy shaping*, where firms, anticipate changes as well as try to shape policy and institutions to their own advantage.

Previously, the majority of firms adopted a free-rider strategy and never became politically active since firm relations with government were viewed as a cost (Oliver and Holzinger, 2008). However, this behaviour has changed. In the U.S., the number of public company firms which include former government officials has increased from 14% in 1973 to 53% in 1998 (Lester et al., 2008). These numbers can not be ignored. Such an increase indicates that former government officials are a valuable resource firms pursue and use (Lester et al., 2008). As Keim and Hillman (2008) show, the main contingency factor is the importance of the issue and how it affects the firm. For issues with relatively little impact on the firm, managers may choose passive reaction. As the level of importance increases managers may choose to anticipate political decisions. Issues which may affect significantly operations or future plans may be dealt with a proactive public policy.

The benefits from having former government officials sitting on board of directors seem to increase in highly regulated sectors. Highly regulated sectors have traditionally been the utilities sector, electricity, where their pricing and even profits are regulated by the state (Agrawal and Knoeber, 2001), banking, and financial services (Edwards, 1977; Okhmatovskiy, 2010), and chemicals (Blau et al., 2000). "Firms that receive a significant portion of their revenues or face elevated levels of regulatory scrutiny have high motivation to manage that dependency through CPA" (Hillman et al., 2004: 840). In fact, the literature recognises that political institutions play to some extent opposing roles in an economy (Wiseman et al., 2012). On one hand, political institutions promote economic exchanges by supporting an infrastructure of intermediations that increases the transparency of economic transactions. But, at the same time, political institutions regulate economic exchanges by circumscribing and even preventing certain types of economic transactions from occurring, as it happens in highly regulated sectors. Under such circumstances, political intervention constrains managerial autonomy. Firms have to face a powerful stakeholder having a political or social agenda that may hamper the managerial discretion and ability to satisfy other stakeholders (Finkelstein and Boyd, 1998). These constrains could come not only by government regulation but also by government involvement in the corporate governance of individual firms through ownership and board ties (Okhmatovskiy, 2010). That explains the important role former government officials play as board members. They could represent "the man of the government at firms" but, inversely they can lobby politics and regulations according with firms' interests.

> ***$H_3$:*** *Firms in highly regulated sectors will have more former government officials in their boards.*

This dissertation argues that including former government officials as board members signals that firms are involved in either *positive anticipation*, that is, former government officials through their external communication channels have access to better and timely information the firm can use in their own benefit; or firms are involved in *proactive public policy shaping*, that is, former government officials due to their links with their political parties are in a good position to help firms to shape future public policy. Nevertheless, "the balance between benefits and costs associated with ties to the government depends on many contextual factors and it is difficult to predict the balance of benefits and costs for a specific country, in a specific industry, and during a specific period of time based on prior studies in different contexts" (Okhmatovskiy, 2010: 1025). Firms are not isolated and they are affected by the environment. One of the most relevant factors in the environment is government and firms have the option to try to shape government policy for their own benefits. Firms hire former government officials to co-opt the political environment and to improve performance. The research linking governance structures and financial performance relies on accounting-based financial indicators (Dalton et al., 1998) and return on assets is one of the most commonly used. Thus, the hypothesis is:

> ***H₄:*** *Firms with former government officials in their boards have better financial results (ROA) than those firms without former government officials in their boards.*

When an individual is appointed to a board he is expected to support the organisation and try to aid it (Lester et al., 2008). Boards of directors, according to agency theory, serve two functions: monitoring and providing resources (Fama and Jensen, 1983). On the other hand, according to resource dependence theory, the procurement of external resources is vital for firm survival and performance (Pfeffer and Salancik, 1978). According to Hillman et al. (2003), the link between firm

performance and the board of directors follows two paths. The first one is related to agency theory and monitoring management. Effective monitoring increases performance. The second path is related with resource dependence theory, where boards are providers of resources which in turn increases firm's performance. "Appointing a former politician to a corporate board solidifies a tie to his political party. Through these directors, firms can influence rule-making and gain access to timely information about government contracts, industrial and trade policies, and changes in regulatory policies and enforcement" (Stark and Vedres, 2012: 702). In other words, former government officials bring rare resources to the firm which in turn can be used to modify the regulatory environment.

Overall, former government officials seem to be a resource firms may want to obtain in order to improve general performance. Once firms use political strategies they tend to be long term in scope (Schuler, 1999). After all, political behaviour is considered a nonmarket type of strategy aiming to improve the performance of the firm (Baron, 1995). Along with Oliver (1991) *manipulating* category and Hillman et al. (2000) classification of directors, as Kim and Cannella (2008) posit, the most extreme way to control the source of the dependence is to absorb it, that is, co-optation, This dissertation posits the following hypothesis:

***$H_5$:*** *Once involved in politically strategic management, firms will continue to do so.*

## 2.3 Social theory

When analysing boards, the literature has focused on their size and composition. However, this analysis ignores other factors or features that are important to understand boards and their decisions.

One of the main questions in social theory is how institutions and firm behaviour are affected by social relationships (Granovetter, 1985) since "...the social world presents itself as a highly structured reality" (Bourdieu, 1989: 19). Organisations are made of people and, therefore, all the actions taken by the organisation, by its board, are guided by one of its more important resources: people. Economic behaviour is continuously modified by social relationships (Granovetter, 1985). Social network studies have their roots in sociology when exploring social groups, roles, status, social exchange, influence, and other forms of relationships among individuals (Lavie, 2006). The social network approach views organisations in society as a system of objects, that is, people, groups, and organisations, joined by a variety of relationships, and these relationships are bound to affect them (Kilduff et al., 2006). "A network perspective is also useful to strategy scholars who focus on contracting and governance issues and how these choices influence firm performance" (Gulati et al., 2000: 212). This will lead to a better understanding of the strategic behaviour of firms.

Social capital is the people we know, contacts, through whom we receive opportunities to use our financial and human capital (Burt, 1992). Human capital is defined as "an individual's expertise, experience, knowledge, reputation, and skills" (Lester et al., 2008: 1001). Social capital refers to "the sum of actual and potential resources embedded within, available through, and derived from, the network of relationships possessed by that individual" (Nahapiet and Ghoshal, 1998: 243). It requires an investment of both economic and cultural resources (Portes, 1998). Furthermore, it is not the person itself but those he or she is related to the real source of his or her advantage (Portes, 1998). Likewise, when a high level of social capital is achieved there is a motivation to maintain those relationships (Kostova and Roth, 2003). Studies show that there has been an increase in the use of social capital by corporate board members in recent years in a number of countries, for

example, the U.S. (Lester et al., 2008) and Australia (Stening and Wan Tai Wai, 1984; Kiel and Nicholson, 2003) among other countries.

Social capital has four benefits (Pfeffer and Salancik, 1978) related to resource dependence theory. First, *advise and counselling*, which are linked to firm's performance (Westphal, 1999). Appointments to boards facing strategically similar environments enhance the directors' ability to advise management (Haynes and Hillman, 2010). Second, the provision of firm *legitimacy and reputation* (Hambrick and D'Aveni, 1992; Daily and Schwenk, 1996; Yeo et al., 2003). Third, social capital provides *channels of communication* and conduits of information between the firm and external organisations which provides the board with strategic information otherwise unavailable (Hillman and Dalziel, 2003); access to broader sources of information improves information's quality, relevance, and timelines (Oh et al., 2006; Kim and Cannella, 2008; Kor and Sundaramurthy, 2009). And fourth, social capital *helps to obtain resources* outside the firm (Hillman and Dalziel, 2003), being financial resources one of the most important. As Adams et al. (2010) explain, when directors have links with or are affiliated with banks lending to the firm, the firm's overall debt ratio is lower. The greater the uncertainty in the firm's environment, the more likely the firm will rely on managerial networking to reduce this uncertainty (Acquaah, 2007), all of which improve performance. The most analysed benefit of social capital is related to financial theory, whereas firms with positive net value are able to obtain credit at competitive rates. Social capital theory adds to this since "banking transactions are embedded in social relations that uniquely shape credit access and costs in ways that are inadequately incorporated into financial theory" (Uzzi, 1999: 481).

One simple example can help us understand the importance social capital has. "Before Microsoft was a household name. Bill Gates had a singular distinction in his network-his mother, Mary Gates,

who sat on the board of United Way with John Akers, a high-level IBM executive. At the time, Akers was helping to lead IBM into the desktop computer business. Mary Gates talked to Akers about the new breed of small companies in the computer industry, which she felt were under appreciated competitors of the larger firms with which IBM traditionally partnered. Maybe she changed Akers's vision of who to go to for the new IBM PC's DOS, or maybe her comments confirmed what he already knew. In either case, after their conversation, Akers took proposals from small companies, one of which was Microsoft. The rest is history: Microsoft won the DOS contract and eventually eclipsed IBM as the world's most powerful computer company. Without Bill Gates's potent network, a sensational new operating system might have faded into obscurity" (Uzzi and Dunlap, 2005: 53). It is people you know, your social capital, what can give you an advantage in certain situations. In this case, Bill Gates' mother was the starting line.

Social capital and economic behaviour are so constrained with each other than studying them independently will lead to misunderstanding since economic behaviour is modified by social relationships (Granovetter, 1985). "Social capital refers to the idea that individuals' social contacts convey benefits that create opportunities for competitive success for them and for the groups in which they are members" (Labianca and Brass, 2006: 596). According to Valenti and Horner (2010), board social capital encompasses two types of relationships: *internal social capital*, which are ties with persons within the firm; and *external social capital*, which are ties with persons outside the firm. Personal contacts with people outside the organisation are useful to deal with uncertainty (Granovetter, 1985; Hillman and Dalziel, 2003). In his study, Granovetter (1985), acknowledged how behaviour and institutions are affected by social relations, defining embeddedness as "...the argument that the behaviour and institutions to be analysed are so constrained by ongoing social relations that to construe them as independent is a grievous misunderstanding" (Granovetter, 1985:

482). In other words, it shows a clear relationship between firms and institutions with deep roots in social capital.

### *2.3.1 Interlocks and networks*

Interlocks are a concept closely related to social capital and have become one of the main indicators of social ties among firms. It cannot be said that interlocks are random. Their prevalence is too high and their increasing number cannot be ignored (Shropshire, 2010). “An interlocking directorate occurs when a person affiliated with one organisation sits on the board of directors of another organization” (Mizruchi, 1996: 271). In other words, a person is a board member in at least two firms.

There are benefits for firms when they use interlocks. Interlocked firms share behaviours and strategies, such as acquisitions, diversification, golden parachutes and poison pills, and decision processes. Director interlocks are also used to transfer information between firms, cement ties within the upper capitalist class, increasing innovation, disseminate practices, gaining access to new markets, decreasing transaction costs, and share similar strategies and behaviours. Therefore, they are used to manage environmental uncertainty, gain access to diverse skills and resources otherwise not available to the firm, facilitate communication across firms, agreed take-overs, provide legitimacy, and lobbying regulatory bodies (Heracleous and Murray, 2001; Filatotchev and Toms, 2003; Ruigrok et al., 2006; Kang, 2008; Shropshire, 2010; Cárdenas, 2012). In other words, inter organisational imitation (Haunschild, 1993), which is new institutionalism, as well a the use of resources, which is resource dependence theory. The following table, adapted from Heracleous et al. (2001) is a summary of the reasons for firms to use interlocks.

**Table 2. Reasons for interlocks.**

| Reason | Definition |
|---|---|
| Collusion | To engage in practices that restrict competition |
| Cooptation | To co-opt sources of environmental uncertainty |
| Monitoring | For inter-organisational control |
| Legitimacy | To increase legitimacy through prestigious connections |
| Career advancement | For the person, interlocks can help advance one's career |
| Social cohesion | Social ties among members of the upper elitists classes |

Adapted from Heracleous et al. (2001)

Some authors have studied the negative effects of interlocks. The most important one is the busyness effect: board members cannot properly monitor the firm if they have several firms to monitor (Ferris et al., 2003; Harris and Shimizu, 2004). Other authors, such as Fracassi and Tate (2012) and Subrahmanyam (2008), focus on other possible negative effects such as the loss of firm value; or Barreto and Baden-Fuller (2006) who in their study of Portuguese banks found a negative relationship between imitation and bank profitability. One final negative effect interlocks may have is related to "reputational penalties", when firms are negatively affected just by being related through interlocks to firms alleged with financial reporting fraud (Kang, 2008). Nevertheless, and despite these negative examples, the literature on interlocks mostly focuses on the benefits, which outweigh the negative effects.

When there are interlocks among different firms, a network is created. "We define a network as a set of nodes and the set of ties representing some relationship, or lack of relationship, between the

nodes. The nodes are actors (individuals, work units, or organizations)" (Brass et al., 2004: 795). Social networks are not natural phenomena. They must be created by individuals through investment strategies oriented to group relations to create the network, which they will use as a source of other benefits in the future (Portes, 1998). There is then a strategy to create these networks, and from the firm's point of view, this strategy may be used to achieve goals, such as access to better information (Acquaah, 2007), improving performance (Kim and Cannella, 2008), or political advantages (Lester et al., 2008). Perhaps the most analysed use of interlocks is the transfer of information "...social networks are important for information flow between firms and investors" (Cohen et al., 2008: 976). The main advantages of networks include increase innovation, influence the nature of competition, lowering transaction costs, adapt to the environment, increasing efficiency, and access to critical resources, all of which leads to higher performance (Heracleous and Murray, 2001).

Networks have been analysed with a focus on different issues: corporate behaviour (Baker, 1990); the spread of strategies (Davis, 1991); knowledge transfer (Inkpen and Tsang, 2005); financial effects (Musacchio and Read, 2007); firm performance (Cronin and Popov, 2005); information processing (Stenvenson and Gilly, 1991); hiring patterns (Williamson and Cable, 2003); communication channels and power structures (Cárdenas, 2012); and multilevel review studies (Brass et al., 2004; Provan et al., 2007). Nevertheless, there is a gap in the literature since network studies focus on individual firms and there are no studies on the impact of interlocks on the economy as a whole (Cárdenas, 2012). Network studies have been classified into two groups: *egocentric or organisation-level* and *network-level* approaches (Provan et al., 2007). Organisation-level approaches help us understand which network positions might be most or least influential or how the positions of organisations in a network might shift over time. Structural characteristics that

are commonly analysed in networks are in-degree and out-degree centrality, closeness centrality, betweenness centrality, broker relationships, and cliques. By contrast, network-level approaches focus not on individual organisations but on explaining the properties and characteristics of the network as a whole. Network properties include density, fragmentation and structural holes, governance, centralisation, and cliques (Provan et al., 2007). In general, in line with performance-related outcomes, network research has mainly focused on the structure of networks (Cross and Cummings, 2004) viewing them as a "living being" who, as Kilduff (2006) indicates, changes continuously. The following table defines the main concepts:

**Table 3. Summary and explanation of common network terms.**

| Characteristics | Definition |
|---|---|
| In-degree and out-degree centrality | Degree centrality is based on the number of direct links maintained by an organisation with others in the network |
| Closeness centrality | Central organisations have short "paths" (connections) to all other organisations in the network |
| Betweenness centrality | An organisation serves as a gatekeeper within the network. It must maintain intermediary links between organisations that are not directly connected with one another. |
| Multiplexity | The strength of the relationship the firm maintains with network partners, based on the number of types of links. These are indicators of the strength and durability of the firm's links. |
| Broker relationships | Organisations that span "structural holes" are considered to be brokers, often occupying positions of considerable influence |
| Cliques | Clusters of three or more organisations connected to one another |
| Density | The overall level of connectedness among organisations in the network |

| Characteristics | Definition |
|---|---|
| Fragmentation and structural holes | Fragmented networks may exhibit connections among organisations that are themselves unconnected or only loosely connected to other clusters of connected organisations. This means that the network has many structural holes |
| Governance | The mechanism used to govern and / or manage the overall network |
| Centralisation | The extent to which one or a few organisations in the network are considerably more centrally connected than others. |

Source: Provan et al., (2007)

Networks have characteristics that can be analysed. The most analysed characteristics by the literature are density and centrality. Density is the level of connectedness among organisations in the network (Freeman, 1978). "Density is an important indicator of the reliance of companies on interlocks" (Musacchio and Read, 2007: 856). Density can help us define clusters, which are regions in the network with high density and few links to other clusters (Hoppe and Reinelt, 2010). Centralisation tells us how a few firms in the network are more centrally connected than other firms (Freeman, 1978). Centralised networks have a dense core, while decentralised networks are more dispersed. In highly centralised networks information is monopolised by a few actors, whereas in lowly centralised networks more actors participate in the sharing of information (Cárdenas, 2012). In a highly centralised network if one of the most centralised actors disappears, the whole network if affected. This is not the case for decentralised networks since new paths are created easily. These two variables, density and centralisation, provide information about the structure of the network. Density analyses the whole network whereas centralisation analyses the ties among actors (Valenti and Horner, 2010). Other characteristics have also been widely analysed. For example, betweenness centrality tells us how often one individual is most likely to be a relay point between two or more other network members (Hoppe and Reinelt, 2010). In other words, when two actors are willing to

interact, they must go to other actors between them. These other actors have high betweenness centrality (Haunschild and Beckman, 1998). On the other hand, closeness measures how quickly actors can communicate with all others in a network (Haunschild and Beckman, 1998). The factors all network analysis have in common is that networks have to be created and the focus is on large firms (Cárdenas, 2012).

One of the major factors firms must consider when establishing their strategies is merely other firms (DiMaggio and Powell, 1983). That is, firms follow competitors' strategies because they perceive them as successful. Nevertheless, as Shropshire (2010) shows, even though institutional theory provides a perspective on board interlocks, research in this area has been limited to imitation and legitimacy. Haunschild and Beckman (1998) use information to explain the imitation process: "If director interlocks are an influential source of information then, one consequence of this information is that we should see firms adopting the practices and structures previously adopted by their interlock partners" (Haunschild and Beckman, 1998: 817). It is also important to note that a few firms within the network and their leaders play a central role in the transfer of rules and practices (Provan et al., 2007). That is, the core of the network leads its evolution when other firms in the network imitate or introduce practices already used by the leaders.

"The tradition of research on board interlocks comes largely from institutional theory, which suggests that the imitation of practices across interlocked firms follows normative, coercive, and mimetic pressures" (Shropshire, 2010: 248). According to mimetic pressures, firms imitate other firms in the sector because they perceive their strategies as successful (DiMaggio and Powell, 1983; Oliver, 1991; Lieberman and Asaba, 2006; Shropshire, 2010). Nevertheless, even though it is generally accepted by scholars that imitation spreads among firms through interlocks, it is difficult

to measure the level of imitation. Density and centralisation influence how information "moves" through the network (Provan et al., 2007). This is also important for resource dependence theory since it may help explain which resources firms need to increase their density and centralisation. Likewise, some members of the network can provide better information than others (Stenvenson and Gilly, 1991). For example, dense networks make it easier for information to be shared by firms. Those firms with a low degree of centrality do not share many directors with other firms, becoming then peripheral firms in the network or, in an extreme case, when centrality is null (they do not share any directors at all), they are *isolates*. Even though most research focuses on central firms in the network, it is important to analyse those firms that are isolated (Aguilera, 1998).

Network structure, its evolution, and board characteristics are important. The evolution of the network can help us understand its changes and the goals pursued with those changes. By contrast, changes in board characteristics will affect the network since new interlocks might be created or old ones might cease to exist. Networks come in a variety of forms and as Heracleous et al. (2001) indicate, there is little research on their impact on, among other factors, firm performance. Networks can also be used to analyse power and control relationships (Cárdenas, 2012), so we can better understand how top management works and its economic effects. Cárdenas (2012) creates a typology of corporate networks identifying *elitist* networks, based on unity, centralisation and control; and *pluralist* networks, based on autonomy, decentralisation and communication ties. Based on this typology countries are grouped as follows:

**Table 4. Country, typology, and most central positions in the network.**

| Country | Central position | Typology |
|---|---|---|
| Germany | Metallurgy corporations | Elitist |
| Canada | Oil and banks | Elitist |
| Italy | Banks | Elitist |
| Australia | Banks | Pluralist |
| France | Various sectors | Elitist |
| Sweden | Economic holdings | Pluralist |
| United States | No central firms | Pluralist |
| United Kingdom | No central firms | Pluralist |
| Spain | Utilities | Elitist |
| Japan | No central firms | Pluralist |

Adapted from Cárdenas (2012)

Another typology is the one proposed by Heracleous et al. (2001). They posit a network typology based on two dimensions: *interdependence*, where the output of one firm is the raw materials of another; and *durability*, "the extent to which these networks persist in the long term, and with broadly similar participants" (Heracleous and Murray, 2001: 142). The different combinations high / low interdependence or durability lead to specific types of networks (edge of chaos, embedded, brokered, atomistic, and association) which show clear and distinct characteristics.

The following hypotheses focus on which board characteristics cause firms to have a central position in the network. The two main board characteristics analysed are size and composition, that is, the insiders / outsiders ratio. Here, board size is the number of active board directors at the end

of the year, while insiders are board members with management duties in the firm and outsiders are board members who do not have management duties in the firm. It is reasonable to think that different board characteristics will affect which decisions are made by the firm and, therefore, its position in the network. Boards define and implement the strategy of the firm (Stiles, 2001; Kor, 2006; Ravasi and Zattoni, 2006; Ruigrok et al., 2006), and through the human and social capital outside board members bring to the firm, they may influence the actions of the board and its effectiveness (Kor and Sundaramurthy, 2009). In her study, Kor (2006) finds that board composition, along with other factors such as top management team composition, has a direct effect on the firm's R&D investment intensity. Adams et al. (2010), in their study of U.S. firms, find that most board members are believed to be involved in setting the strategy of the firm.

When firms have a high degree of centrality, it means they share more directors with other firms than the rest: they have more interlocks. The benefits of a high degree of centrality, having a central position in the network, include managing environmental uncertainty, better access to quality information, gaining access to diverse skills and resources, providing legitimacy for the focal firm, facilitating communication across firms, allowing board members better control over resources, and firms becoming highly visible in the network (Aguilera, 1998; Shropshire, 2010). The result is that those firms that are centrally located, sharing more ties with other firms, are the most powerful actors in the network (Stenvenson and Radin, 2009).

Research supports the view that interlocks provide information, which in turn affects how firms adopt strategies and structures (Haunschild and Beckman, 1998). To increase their centrality, firms may choose board members with multiple interlocks. Therefore, firms will have large boards to reap the benefits of interlocking directorates. The composition of U.S. boards has been analysed in a

number of studies. Finkelstein and Mooney (2003), analysing firms from Standard & Poor's (S&P) 500, find that outsiders account for 75% of directors on the average board. Fich and Shivdasani (2006) focus on a director's interlocks and firm performance and find that outsiders form the majority on U.S. boards. Further, outsiders with multiple appointments, interlocks, are not more likely to occur in firms that are performing poorly. Boone et al. (2007) find that as firms grow and become more complex so do their boards. In the U.S., Fortune 500 firms had an average board size of over 11 in 2005, whereas small firms had an average board size of six (Stenvenson and Radin, 2009). There seems to be a link between firm size and board size.

As for the Spanish case, one recent study about board size and composition was undertaken by Acero Fraile and Alcalde Fradejas (2010). Their study shows the great diversity in size and board composition among Spanish firms. The average size of the board is 9,68 members and there are more outsiders than insiders. Their results, which highlight than one size does not fit all, also show that larger firms have larger boards with a higher percentage of outsiders. The fact that outsiders form the majority on boards can be traced back to the number of "recommended" rules large firms may follow (Olivencia's report in 1998, Aldama's report in 2003, and unified code for corporate government in 2006). In general, these rules were not compulsory. Some of them though (i.e., corporate government annual report) became compulsory in 2003.

Interlocks, which are the bricks in the network's structure, may be created by any member of the board, insiders or outsiders. It is important, according to resource dependence theory, to know which board members provide this resource to firms, helping scholars and practitioners better understand, among other things, how firms select their board members. The board is then an essential link between the firm and the external resources that the firm needs (Kiel and Nicholson,

2003). One of the basic premises of resource dependence theory is that it "recognizes the influence of external factors on organizational behavior and, although constrained by their context, managers can act to reduce environmental uncertainty and dependence" (Hillman et al., 2009: 1404).

Haunschild and Beckman (1998) analyse when interlocks matter instead of the benefits of interlocks. Likewise, based on the previous literature, the hypotheses proposed are related to specific characteristics of the board that lead to a particular network structure. Overall, differences in board composition and size may affect the resources the firm is able to obtain, which is one of the major pillars of resource dependence theory. As for Spanish firms, even though there is little research in the area, Acero Fraile and Alcalde Fradejas (2010) show that there seems to be a relationship between firm size and board size on Spanish boards: the larger the firm, the larger is the board. Overall, larger firms will need access to a greater range of resources than smaller firms (Stening and Wan Tai Wai, 1984; Kiel and Nicholson, 2003). This, again, follows resource dependence theory.

Nevertheless, there seems to be no agreement on how board size affects interlocks. On one hand, Kiel and Nicholson (2003) in their study of Australian firms show a positive correlation between board size and interlocks. In other words, "larger boards are associated with larger companies, more diverse companies and more heavily interlocked boards" (Kiel and Nicholson, 2003: 199). The results of their analysis show that a larger board size is associated with a greater proportion of outside directors and a greater number of interlocks. Their analysis includes a very significant result, that is, high levels of board interlocks are positively correlated with firm performance. On the other hand, Haunschild and Beckman (1998) show that firm size decreases the impact of the interlock. In other words, interlock information is less influential for large firms than it is for

smaller firms. Even though their study focuses on the relevance of interlocks in the dissemination of practices, acquisitions, it is important because it opens the door to the very relevant question of how firm size affects the number of interlocks the firm has. All in all, there is no agreement on how size affects interlocks.

Following Kiel and Nicholson's (2003) explanation of the correlation between board size and firm size it is expected to find a direct relationship between board size and interlocks. That is, the number of board members (board size) is a way to increase the number of ties the firm has. This is then a strategy used by the firm to increase interlocks, which in turn will increase the firm's degree centrality. Overall, board size and composition adapt to facilitate firm success and boards are structured efficiently (Boone et al., 2007). To increase their centrality, firms may choose board members with multiple interlocks. Therefore, firms will have large boards to reap the benefits of interlocking directorates. The variables analysed are board size, number of interlocks, degree centrality, and firm's size. The hypotheses are:

***$H_{6a}$:*** *Board's size is positively related to the number of interlocks the firm has.*

***$H_{6b}$:*** *The larger the board, the higher is the firm's degree centrality.*

***$H_{6c}$:*** *Firm's size affects board's size.*

Following Kiel and Nicholson's (2003) study of Australian firms, it is expected to find that outsiders provide most of the interlocks to the boards of Spanish firms. Now outsiders are used to analyse the number of interlocks the board has as well as firm's performance. The next hypotheses are:

***$H_{7a}$:*** *Outsiders on corporate boards provide most of the interlocks the board has.*

***$H_{7b}$:*** *Higher percentage of outsiders in the board leads to firm's higher financial results (ROA).*

Previous studies based on Spanish firms focus on board characteristics and its functions, that is monitoring and advice providers (Acero Fraile and Alcalde Fradejas, 2010); the evolution of economic development, comparing three different models: Anglo-Saxon, Continental European, and Japanese (Aguilera, 1998); type of network (Cárdenas, 2012), or how social networks determine a director's compensation (Crespí and Pascual-Fuster, 2011). The hypothesis proposed relates to the density of the network. As Venkatraman and Chi-Hyon (2004) show in their work about the video game sector, the density of ties in a network tends to increase over time. This can be partly understood using institutional theory. In her analysis of strategic responses to institutional processes, Oliver (1991) defines a strategy, *acquiescence*, and includes *imitate* among the different tactics firms can use to achieve this. In this case, "imitation, which is consistent with the concept of mimetic isomorphism, refers to either conscious or unconscious mimicry of institutional models, including, for example, the imitation of successful organizations" (Oliver, 1991: 152). Furthermore, networks are less stable over time and firms continuously revise their alliances (Heracleous and Murray, 2001). Therefore, following institutional theory, in particular imitation, we expect that the overall density of the network will increase during the period analysed. More firms, imitating each other, will increase the number of their interlocks, causing the network to increase its density.

***$H_{8}$:*** *Network density increases over time.*

Likewise, the next hypothesis also follows new institutionalism to help explain similar behaviours in firms that belong to the same industry. Therefore, the number of isolates, due to the benefits of an imitating strategy, will be reduced in the period to study. This imitation strategy can help us understand how firms compete in their industries (Shaffer et al., 2000). One of the reasons firms imitate each other is environmental uncertainty, which "has been defined as the inability of a firm's managers to accurately assess the external environment of the organization or the future changes that might occur in that environment" (Koka et al., 2006: 723). Under uncertainty, firms invite on their board representatives of the various resources they depend on to reduce environmental uncertainty and maintain their position in the market (Drago et al., 2011). Under the environmental conditions of uncertainty, firms will imitate those strategies that have been implemented by other firms and that have proven to be successful. Overall, the imitation of successful strategies can help explain these two hypotheses.

> ***$H_9$:*** *An imitating strategy (increasing interlocks) causes the number of isolated firms to decrease over time.*

Even though at first glance there seems to be a link between network density and the number of isolates (e.g., higher densities may have fewer isolate firms), these two variables do not have a direct relationship. Density refers to the overall level of connectedness among organisations in the network. Therefore, firms may have more links with other firms, while the number of isolates in the network is not reduced or it might even increase over time.

One of the major advantages of networks is access to financial capital at a reduced cost. Economic transactions become embedded in social relations that affect the allocation and valuation of

resources (Uzzi, 1999). In the United States, networks work as complements to financial markets (Musacchio, 2004). Networks provide firms not only access to a number of resources such as knowledge or technologies, but also access to financial markets (Inkpen and Tsang, 2005), which otherwise may be closed to them. The main advantages of social capital are linked with financing. Sociological theory argues that banking transactions and social relationships are embedded, making them no longer independent. Firms are more likely to obtain credits at lower than average interest rates if they have social ties with banks, which agrees with resource dependence theory. In other words, those firms with social ties and relationships with people upon which their transactions depend are more likely to obtain credit loans at a below market rate (Uzzi, 1999). Having an outside director from a lending firm helps reduce the cost of lending in a twofold way: it will increase the ability of the firm to access finance and the director, at the same time, will protect the interest of the bank (Adams et al., 2010).

Musacchio (2004) proved that in Mexico and Brazil when firms had in their corporate boards directors with banking backgrounds and ties, they also had easier access to credit loans. When firms are in good relationships with banks, they increase their access to funds since monitoring costs and information asymmetries are reduced for banks. In Mexico, for example, firms used informal institutional ties to gather information. Firms obtained funds through friends and personal connections. The main business figures in Mexico often were politicians who helped firms achieve their goals and increase their benefits. When Mexican firms had politicians on their boards of directors, the firm's costs linked to dealing and negotiating with the government were reduced (Musacchio and Read, 2007).

Mizruchi and Stearns (1994), in their longitudinal study, analyse large U.S. firms to determine that corporate borrowing depends on four factors: *the expected return on borrowing*, a firm should not borrow unless its expected returns exceed the cost of the fund; *the availability of internal funds*, where a firm's level of retained earnings is inversely related to its level of borrowing; *the strategic orientation of the CEO*, where firms whose CEOs come from financial backgrounds have higher levels of borrowing than firms whose CEOs come from non-financial backgrounds; and *the firm's board composition*, firms with financial representation on their boards of directors borrow more than firms without financial representation. They find that when outside directors from financing firms are on the board, the company is more likely to borrow from these firms since financial firms are more willing to lend when they can closely monitor their loans and firms are more willing to borrow when they believe board members from financing firms can provide better advice on borrowing.

Uzzi (1999), analysing which U.S. firms get funds and their costs, finds that when there are social ties between firms and their banks, firms have easier access to capital and at a lower cost. The key factor is to understand that economic transactions become embedded in social relations, which affect the allocation and valuation of resources. "Social embeddedness is defined as the degree to which commercial transactions take place through social relations and networks of relations that use exchange protocols associated with social, noncommercial attachments to govern business dealings" (Uzzi, 1999: 482). These social relationships allow, among other things, for the exchange of private information, which in turn allows banks and firms to find solutions to financial problems that are not available through normal market relationships. "The transfer of private knowledge promotes value creation in exchanges by revealing to exchange partners the unique possibilities they possess for matching their competencies and resources" (Uzzi, 1999: 483).

In 1981, in a study of 456 Fortune 500 firms in the United States, over 70% of the firms had at least one board member who also sat on the board of a financial institution (Mizruchi, 1996). Mizruchi goes one step further and indicates that there are both explicit and inadvertent reasons for the formation of interlocks. In addition, one of the first network studies, Mariolis (1975), finds that in 1969 among U.S. firms, commercial banks were the most central firms in the network. "This indicates that banks do serve an integrating function in the economy" (Mariolis, 1975: 437). Out of the 20 most central firms, eight were banks, seven industrial firms, three insurance firms, and two utilities. Both studies, which show the relationships among firms and financial institutions in the U.S., are good examples of the importance of interlocks, particularly in the banking system, how they have been analysed in other countries, and the long history of studies in this area, which we are lacking in Spain.

On the European side, Ziegler et al. (1985) examine directorship interlocks in Germany. They show that banks, as in the U.S., are the most central firms in the network. Later, Windolf and Beyer (1996) find that banks, as well as insurance firms, are at the core of the network. "The centrality of banks and insurance companies in those networks is often taken as an indicator of the importance of financial institutions" (Windolf and Beyer, 1996: 220). On the Spanish side, Aguilera (1998), in her study of 190 Spanish firms, finds that large Spanish domestic banks and utility companies are at the core of the network. Out of the 13 most central firms in the network, six are banks and four are in the utility sector, with one each in the oil, food and tobacco, and telecommunication sectors. This is an important characteristic of the structure of the network and it can help scholars understand and analyse the different strategies firms pursue in order to achieve their goals, since access to financial resources is one of the most important factors firms have to consider. But Aguilera's analysis

occurred at a moment of transition in the Spanish economy and society which might not be the case now. This dissertation posits that networks change over time since board of directors also change over time. The hypothesis proposed is also related to the characteristics of the network. In this case, to the most central members of the network.

***$H_{10}$:*** *Banks have a central position in the network.*

# CHAPTER 3: METHODOLOGY



## 3.1 Sample

To test the hypotheses outlined previously data was obtained from a number of sources. Firms in the Spanish Stock Exchange are analysed. But not all firms in the stock exchange are analysed, only the larger ones, the most relevant ones listed in CNMV. This implies the firms analysed here are all large in size, a predetermined bias. Comisión Nacional del Mercado de Valores (CNMV) is the regulating institution for the several stock exchanges in Spain. CNMV and Bolsa de Madrid (Madrid's Stock Exchange) have a classification system of sector and sub-sector. The sub-sector category was used herein to classify firms (insurance, banking, real estate, and so on). The sample for 2004 included 181 firms and the sample for 2009 included 156 firms. These are the two years to analyse.

## 3.2 Definitions

The following definitions are used: Board size represents the number of members of the board of directors as listed in the annual corporate government report filed by the firm. Outside directors are

members of the board of directors listed in the annual corporate government report filed by the firm as outsiders. Inside directors are members of the board of directors listed in the annual corporate government report filed by the firm as insiders. Board interlocks are individuals who are board members in at least two different firms. There is no differentiation between outsiders or insiders, that is, the individual can be an outsider or insider in any of the firms and still an interlock is created. Firm size refers to the market-value-weighted index level of the firm (capitalisation). This data is obtained through firm's corporate reports.

Density is the degree to which members are connected to all other members. Centralisation is the "extent to which a set of actors are organised around a central point" (Caroline, 1996: 333). Both, density and centralisation are calculated using UCINET network software. A network is a set of individuals, firms in this study, and the relationship or lack of relationship among them. An isolate is a firm with no interlocks with other firms. Performance can be measured financially and strategically (Peng and Luo, 2000). Return on assets is used here due to its accuracy.

$$\text{Return on assets} = \frac{\textit{Net Income}}{\textit{Total assets}}$$

Regulated industries are "firms that receive a significant portion of their revenues or face elevated levels of regulatory scrutiny have high motivation to manage that dependency through CPA" (Hillman et al., 2004: 840). Former government officials are elected national officials, including Prime Ministers, cabinet ministers, Members of Parliament, Senators, and Secretaries of State. Committee membership, that is when a board member listed as a member of a committee by the firm in the annual corporate government report filed by the firm. Sociometry is "the method for

ascertaining the relationship between units" (Tichy et al., 1979: 510). Firms were labeled as "politically active" if any of the boards members was previously a former government official.

## 3.3 Data collection

As Tichy et al. (1979) indicate, there are different data collection methods: *Positional analysis*, which uses information provided by the firm; *reputational method*, which uses judgements of selected community members through interviews; *decisional analysis*, which focuses in the process of decision making; and *interactional methods*, which focus on the flow of interactions and its feedback. The advantages and disadvantages of each method are shown in the table below.

**Table 5. Data collection methods.**

| Method | Strength | Weaknesses |
|---|---|---|
| Positional analysis | Easy access | Least accurate |
| Reputational | Simplicity of design and data collection | Status bias often built in |
| Decisional analysis | Issue specific | Ignores indirect, subtle influence |
| Interactional analysis | Reliability of data | Requires high trust |

Adapted from Tichy et al. (1979)

This dissertation will be using *positional analysis*. The sources are official reports filed by the firm to the regulator and it then overcomes the main weaknesses of this method, that is, accuracy. If the regulator finds errors in the reports firms will be sanctioned. The threatened penalty for disobeying the law leads to information accuracy.

The first step was to identify the firms for the sample. CNMV produces a yearly report in which firms are classified according to their capitalisation levels, from most capitalised (market-value-weighted index level) to least capitalised, that is, their size. This annual report was used to select the sample of firms for both years. Not all firms in the Spanish stock exchange are listed there, only the larger ones. The reports are at http://www.cnmv.es/portal/Publicaciones/Informes.aspx. These reports also analyse at the aggregate level some of the key features of the largest firms in the Spanish stock exchange such as the number of board meetings, board composition according to gender, number of committees, average number of members in each committee, wages for board members, insiders / outsiders ratio, board size, and so on. Access to the CNMV webpage is free and the annual reports can be downloaded without any additional charge.

Once the annual reports for the years 2004 and 2009 had been downloaded and analysed, the next step was to identify the firms to be included in the sample by name and to create a database. The result was, as previously mentioned, 181 firms in 2004 and 156 in 2009. Arcelor Mittal S.A. is not included in either year because it does not have to provide specific information to CNMV due to being a Luxembourg-based firm. Appendix I is the list of firms for 2004 and appendix II is the list of firms for 2009.

Once a list of all firms had been made, the next step was to obtain, also from CNMV, their Corporate Government Annual Report. The reports are at http://www.cnmv.es/portal/Consultas/EE/BusquedaIGC.aspx. CNMV requires since 2004 firms to submit this report yearly with specific information about their corporate governance practices and detailed information about board members. There is a standard form for firms to fill and turn in. Access to the CNMV webpage is

free and the reports can be downloaded without any additional charge. The following table is an example of the information gathered through firm's corporate government reports. The complete list of fields is in Appendix III for 2004 and in Appendix IV for 2009.

**Table 6. Example of the information collected through CNMV for 2004.**

| Firm | Activity | Board Members | Insiders | Outsiders |
|---|---|---|---|---|
| ABENGOA, S.A. | Other market services | 7 | 2 | 5 |
| ABERTIS INFRAESTRUCTURAS, S.A. | Parking and highways | 19 | 1 | 18 |
| ACCIONA, S.A. | Construction | 11 | 4 | 7 |

The following table is a summary of the information gathered through CNMV.

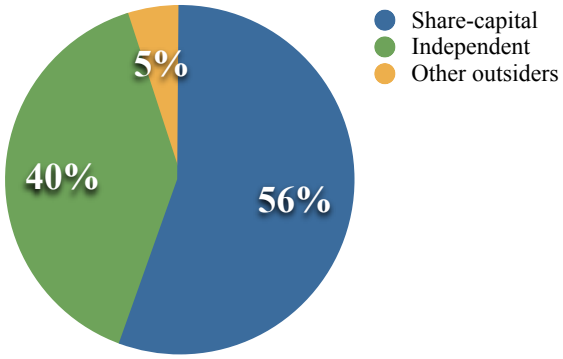
**Table 7. Summary of the information collected through CNMV for 2004 and 2009.**

| | 2004 | | 2009 | |
|---|---|---|---|---|
| Firms | 181 | | 156 | |
| Board Members | 1.748 | | 1.626 | |
| Average size of board | 9,657 | | 10,423 | |
| Number of insiders | 364 | 20,82% | 301 | 18,51% |
| Number of outsiders | 1.384 | 79,18% | 1.325 | 81,49% |

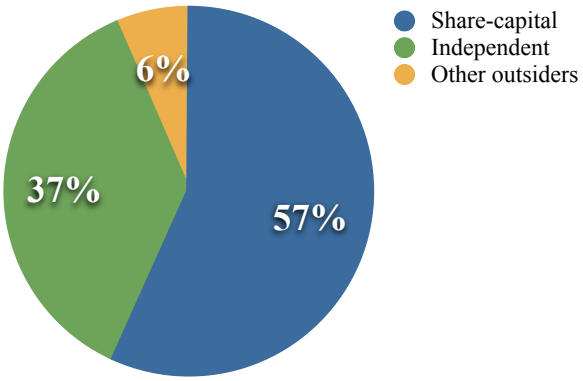
The previous table shows us the average board size has increased from 9,657 in 2004 to 10,423 in 2009 while the number of insiders and outsiders has decreased in both years but barely changed in percentage values.

Furthermore, Spanish law classifies outsiders into *share-capital*, representing shareholders; *independent*, chosen because of their expertise and knowledge; and "*other outsiders*", which cannot be included in any of the previous groups. The following graphs show their relevance in both years, and we can see share-capital outsiders are a majority.

**Graph 1. Outsider's classification in 2004.**



**Graph 2. Outsider's classification in 2009.**




A database was created with the relevant information gathered through CNMV. This database includes the following fields: Name of the firm, their ID number (CIF - código de identificación fiscal), activity sector, capitalisation (market-value-weighted index level), total number of board members as well as their names, last names, and gender; number of insiders, number of share-capital outsiders, number of independent outsiders, number of other outsiders, number of interlocks the firm has with other firms not in the same business group, number of interlocks the firm has with firms in the same business group, number of interlocks provided by insiders, and number of interlocks provided by outsiders. The software used to create and use this database is FileMaker Pro 11 Advance.

The next step, on the political side, was to create a database with the names of all former government officials from 1977 to 2009, that is eight terms plus the constituent term. Former government officials are elected national officials, as explained before, including Prime Ministers, cabinet ministers, Members of Parliament, Senators, and Secretaries of State.

The Spanish Parliament's web page, http://www.congreso.es/portal/page/portal/Congreso/Congreso/Diputados/DiputadosTodasLegislaturas?_piref73_1335406_73_1335403_1335403.next_page=/wc/menuAbecedarioInicio, provided biographical information about Members of Parliament (name, last name, education, background, and political party affiliation), the Spanish Senate's web page, http://www.senado.es/web/composicionorganizacion/senadores/composicionsenado/senadoresdesde1977/consultaorden/index.html, provided the same biographical information (name, last name, education, background, and political party affiliation) for senators, and I contacted the Moncloa Palace communication office (official residence for the Prime Minister of Spain since 1977) and they provided a list of former Secretaries of State from 1977 to 2008. The result was a total of 3.727 former government officials and their corresponding biographical information. The software used to create and use this database was FileMaker Pro 11 Advance.

Now, both databases were cross referenced in order to know which board members had been former government officials. The result was 124 board members, 61 of them in 2004 and 63 in 2009, who had previously been former government officials. Appendix V provides the full list for 2004 and Appendix VI is the full list for 2009. The following table is a summary of the information.

**Table 8. Summary of the information regarding firms and former government officials.**

| | 2004 | | 2009 | |
|---|---|---|---|---|
| Firms | 181 | | 156 | |
| Firms with former government officials | 45 | 24,86% | 42 | 26,92% |
| Number of former government officials | 61 | | 63 | |
| % firms with former government officials | 24,86% | | 26,92% | |

We can see there is a slight increase in the percentage in the number of former government officials, from 24,86% in 2004 to 26,92% in 2009, regardless of the decrease in the number of firms. The number of former government officials increases from 61 in 2004 to 63 in 2009 even though the number of firms has decreased from 181 in 2004 to 156 in 2009. There is then an overall increase in the number of former government officials.

On the financial side, SABI (Sistema de Análisis de Balances Ibéricos) at https://sabi.bvdinfo.com/version-2015106/Search.QuickSearch.serv?_CID=1&context=1ORTBUC0XF4WGZL was accessed. SABI is a database with general information and annual financial statements of over one million Spanish firms. The information includes company financials and financial strength indicators. Firms were located through their ID numbers and were able to create a database which included name of the firm, ID number (CIF) and ROA for those firms. ROA is one of the most common accounting measures of market performance. Banking firms are excluded.

The result was three databases which could be cross referenced using firm's ID number (CIF) with key information. This databases included the firm's name, ID number, activity sector, firm size (capitalisation level), number of board members (board size), and names of all board members, number of insiders, number of outsiders, types of outsiders (*share-capital*, *independent*, and "*other outsiders"*), gender, number of committees, average number of members in each committee, names of those committees, political affiliation if any, background (education) of those former government officials, who creates interlocks, number of interlocks per firm, number of interlocks provided by insiders, number of interlocks provided by outsiders, and return on assets for the specific years.

## 3.4 Statistical analysis

To analyse networks and following previous research, social network analysis was used. "Social network analysis … is a set of theories, tools, and processes for understanding the relationships and structures of a network" (Hoppe and Reinelt, 2010: 601). Social network analysis programs represent the structures of relationships among firms. Nodes here are firms. The links in the network are directed, that is, firm A has a board member that is also in firm B (an interlock). Directed links can be one-way, as in the previous example, or two-way, namely firm A has a board member in firm B and firm B has a board member in A. This dissertation used two-way directed links. Further, links were valued, meaning if, for example, three members of company's A board are also in company's B board, the value of the interlock is three, and so on.

In line with other studies such us Musacchio and Read (2007), the interlocks to be analysed were the ones firms have with other unrelated firms. There are a few exceptions to this rule, mostly in 2004. That is, when two firms that belong to the same business group share interlocks and both are

listed in CNMV as firms to be analysed, they are considered to be independent for the purpose of the analysis. For example, Banco Español de Crédito, S.A., Banesto, is mostly owned by Banco Santander, S.A. In theory, the interlocks between these two firms should not be considered since they both belong to the same business group. However, both firms are listed in the CNMV reports, and therefore, for the purpose of this study, they are considered to be independent.

A social network analysis program, UCINET (University of California at Irving Networks), was used to analyse interlocks. UCINET is a menu-driven program where all data are described as matrices. A free trial version of the program can be found at https://sites.google.com/site/ucinetsoftware/downloads. The total number of shared directors, not the total number of other firms to which a given corporation is linked to, was used to calculate interlocks. Integrated with UCINET is the NetDraw program for visualising networks. UCINET provides both statistical, for example, matrix algebra and multivariate statistics, and graphic results that can be analysed to understand networks. According to Tichy et al. (1979) network analysis relies on sociometric data. When mapping these relationships among units a graph is created. UCINET is used to calculate both variables, density and centralisation, of the networks analysed here for 2004 and 2009.

IBM SPSS Statistics, version 19 was used for the further statistical analysis such as regression analysis. SPSS (Statistical Package for the Social Sciences) provides the results of Pearson's correlation coefficient, which can help us understand the linear correlation, if any, between two variables. Pearson's correlation coefficient measures the strength of the linear relationship between two variables and ranges from -1 to +1 inclusive, where a value of 0 shows no linear relationship, a value of 1 shows a perfect positive linear relationship among the two variables, and a value of -1 shows that one variable increases as the other decreases. Regression analysis explains variability in

the dependent variable with the explanatory variable. SPSS output provides Pearson's correlation coefficient (ranging from -1 to +1) as well as the levels in which it is statistically significant ($p < 0,01$ will be used here). Regression analysis will be used to explain variability in the dependent variable, number of interlocks the firm has, with the explanatory variable, board size, that is, there is a link between board size and the number of interlocks the firm has. Larger boards lead to higher number of interlocks. This is hypothesis ***$H_{6a}$***: *Board's size is positively related to the number of interlocks the firm has.* Regression analysis will also be used to explain variability in the dependent variable, firm's degree centrality, with the explanatory variable, board size for both years. This is hypothesis ***$H_{6b}$***: *The larger the board, the higher is the firm's degree centrality.* Finally, regression analysis is used for ***$H_{7b}$***: *Higher percentage of outsiders leads to higher financial results (ROA),* that is, to explain variability in the dependent variable, performance, with the explanatory variable, higher percentage of outsiders.

SPSS is also used for Levene's test, which assesses the assumption that variances of the populations from which different samples are drawn are equal. The null hypothesis is then that the population variances are equal. The significance level (*p-value*) of Levene's test helps us decide if we have to reject or accept the null hypothesis. If the resulting *p*-value is less than the significance level ($\alpha$ of 0,05 will be used here), the differences in sample variances are unlikely to have occurred based on random sampling and the null hypothesis of equal variances is rejected. Levene's test in SPSS provides two lines of information, one where equal variances are assumed and a second one where equal variances are not assumed. The resulted *p*-value tells us which file we should focus on.

Next, when using Levene's test we need to look at the results for the t-test for equality of means. Once again the *p*-value will tell us if we need to accept or reject the hypothesis. The null hypothesis

is then that the population variances are equal. The rule is that if *p*-value ≤ α , then we have to reject $H_0$. When p ≥ α then we cannot reject the null hypothesis. The variables analysed with Levene's test will be the number of former government officials in regulated industries versus the number of former government officials in non regulated industries for both years (**$H_0$:** μNumber of former government officials in regulated industries = μNumber of former government officials in non regulated industries, **$H_1$:** μNumber of former government officials in regulated industries ≠ μNumber of former government officials in non regulated industries). Levene's test will be used for the third hypothesis, ***$H_3$**: Firms in highly regulated sectors will have more former government officials in their boards*; and the fourth hypothesis, that is ***$H_4$**: Firms with former government officials in their boards have better financial results (ROA) than those firms without former government officials in their boards* (**$H_0$:** μROA with former government officials = μROA without former government officials, **$H_1$:** μROA with former government officials ≠ μROA without former government officials).

One way ANOVA is used to tell us if there is a statistically significant difference between groups. When using ANOVA the observed variance in a variable is partitioned into components attributable to different sources of variation, in other words, whether or not the means of several groups are equal. In order to be able to use ANOVA a few conditions must be met. First the sample must be tested for to see if the dependent variable is normally distributed using the Kolmogorov-Smirnova test. Then tested for homogeneity of variances with Levene's test. SPSS will be used for these tests. SPSS output includes the Shapiro-Wilk. The main difference with the Kolmogorov-Smirnova test is the size of the sample.

The Kolmogorov-Smirnova test (normality test) analyses samples which are then standardised and compared with a standard normal distribution. When the significance level is greater than 0,05 then the sample is normally distributed. If it is below 0,05, the data significantly deviates from a normal distribution. Levene's test has been explained before. When the significance level is greater than 0,05 we cannot reject $H_0$, that is, there is homogeneity of variances.

SPSS ANOVA's output provides two tables. One with descriptive analysis of the data, that is, mean, standard deviation, and maximum and minimum values; and a second table with two lines of information, *between groups* and *within groups*. If the significance level is below 0,05 then we know that there are significant differences between the groups as a whole. ANOVA will be used to test the relationship between firm size, dependent variable, and board size. No further analysis will be used, for example, multiple comparisons with the Tukey post-hoc test since that is not the focus of the analysis. ANOVA is used for ***$H_{6c}$:*** *Firm's size affects board's size.*

Finally, firm size will be used in a number of cases as a contingency factor, that is, firms will be grouped according to their size and possible different behaviours will be tested, meaning firm size is a relevant factor in firm strategy.

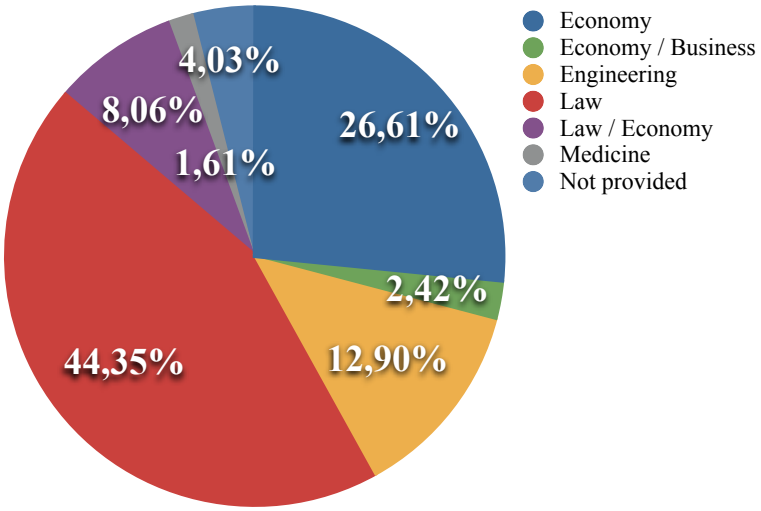
# CHAPTER 4: FINDINGS

The first hypothesis proposes former government officials are, due to their educational background, community influentials and the second hypothesis proposes that former government officials' background does not match the activities of the committee they are in. Former government officials' educational background was gathered from the Congress and Senate web pages, and once we know which former government officials are also board members, the following tables were created.

**Table 9. Educational background of former government officials.**

| Degree | 2004 | % | 2009 | % | Both Years | % |
|---|---|---|---|---|---|---|
| Economy | 16 | 26,22% | 17 | 26,98% | 33 | 26,61% |
| Economy / Business | 0 | 0% | 3 | 4,76% | 3 | 2,41% |
| Engineering | 10 | 16,39% | 6 | 9,52% | 16 | 12,9% |
| Law | 27 | 44,26% | 28 | 44,44% | 55 | 44,35% |
| Law / Economy | 4 | 6,55% | 6 | 9,52% | 10 | 8,06% |
| Medicine | 2 | 3,27% | 0 | 0% | 2 | 1,61% |
| Not provided | 2 | 3,27% | 3 | 4,76% | 5 | 4,03% |
| **Total** | **61** | **100%** | **63** | **100%** | **124** | **100%** |

**Graph 3. Educational background of former government officials, 2004 and 2009.**

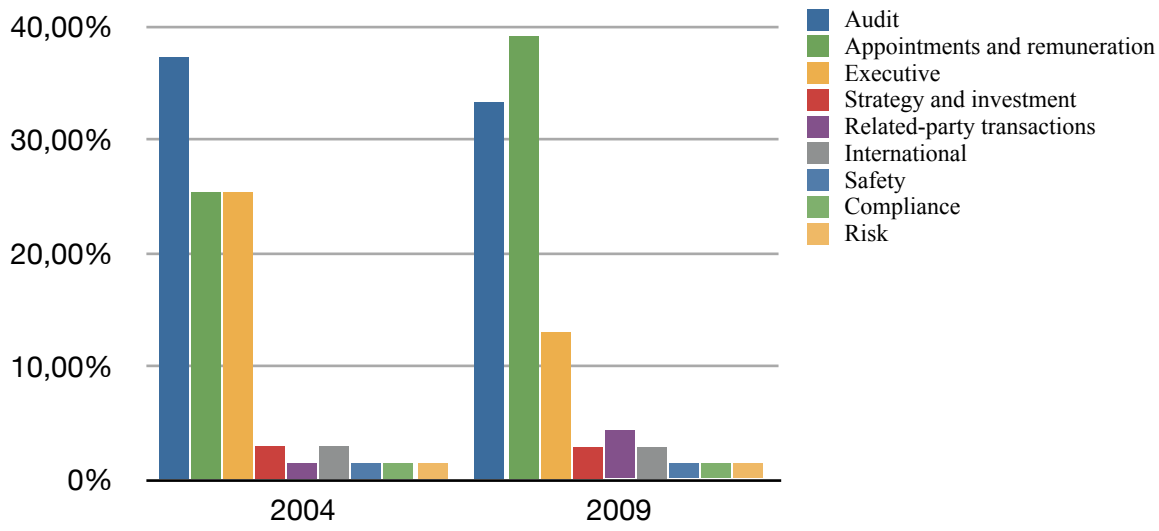



There were 61 and 63 former government officials in 2004 and 2009 respectively. Most former government officials in both years have backgrounds in law, 44.26% in 2004 and 44.44% in 2009. But the firms are not law related, that is, none of the firms in both years are law firms. There is no match between the individual background and the firm main activity. Furthermore, when the committees firms have were analysed, assigning them a required degree and cross referenced those degrees with the ones former government officials participating in those committees have the following tables were created.

**Table 10. Committees and number of former government officials in them.**

| Committee | 2004 Former government officials | % | 2009 Former government officials | % |
|---|---|---|---|---|
| Audit | 25 | 37,31% | 23 | 33,33% |
| Appointments and remuneration | 17 | 25,37% | 27 | 39,13% |
| Executive | 17 | 25,37% | 9 | 13,04% |
| Strategy and investment | 2 | 2,98% | 2 | 2,89% |
| Related-party transactions | 1 | 1,49% | 3 | 4,34% |
| International | 2 | 2,98% | 2 | 2,89% |
| Safety | 1 | 1,49% | 1 | 1,44% |
| Compliance | 1 | 1,49% | 1 | 1,44% |
| Risk | 1 | 1,49% | 1 | 1,44% |
| **Total** | **67** | **100%** | **69** | **100%** |

**Graph 4. Percentage of former government officials by committee in both years.**

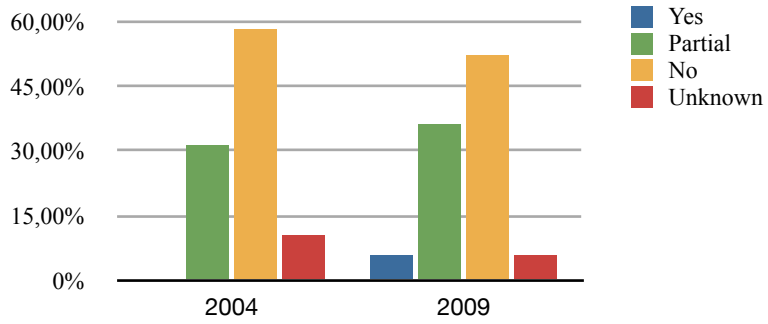


The reason the number here, 67 and 69, do not match the number of former government officials for those years, 61 and 63, is due to some former government officials being members of more than one committee.

**Table 11. Degrees assigned to committees.**

| Committee | Main degree | Secondary degree |
|---|---|---|
| Audit | Business | Accounting |
| Appointments and remuneration | Business | |
| Executive | Business | |
| Strategy and investment | Business | |
| Related-party transactions | Business | |
| International | Business | |
| Safety | Engineering | |
| Compliance | Law | Business |
| Risk | Business | |

**Graph 5. Does former government official's background match committee's degree requirements?**




These tables show that most former government officials belong to committees which do not match their educational background. This dissertation posits these tables and graph show that most former government officials are selected to the board not because of their specific industry expertise or because they are business experts, but because of their links outside the board and the firm which may help the firm achieve its goals. Former government officials are then community influentials. There is also full support for the hypothesis $1_b$, that is, former government officials' background does not match their committee activities, since most educational backgrounds (58,21% in 2004 and 52,17% in 2009) do not match committee requirements, which leads to former government officials are, due to their educational background, community influentials.

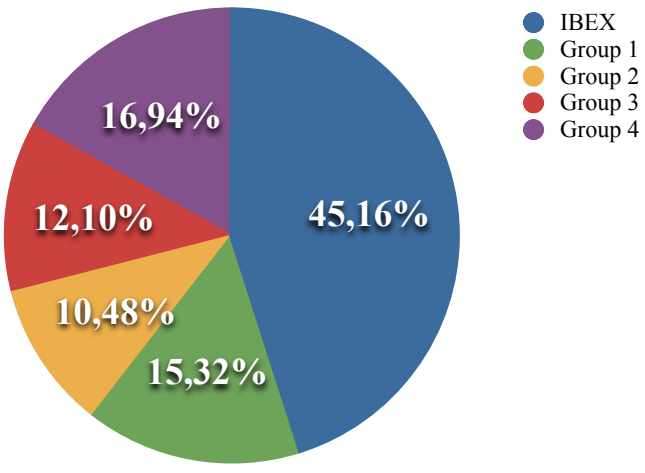
The second hypothesis proposes that larger firms will include more former government officials than smaller firms. Firms were ranked according to their stock capitalisation, that is their size, and the number of former government officials they have.

**Table 12. Firms classified by size and number of former government officials in their boards.**

| Size * | 2004 Former government officials | % of total | 2009 Former government officials | % of total |
|---|---|---|---|---|
| IBEX 35 | 24 | 39,34% | 32 | 50,79% |
| Group 1 | 13 | 21,31% | 6 | 9,52% |
| Group 2 | 7 | 11,48% | 6 | 9,52% |
| Group 3 | 3 | 4,92% | 12 | 19,05% |
| Group 4 | 14 | 22,95% | 7 | 11,11% |
| **Total** | **61** | **100%** | **63** | **100%** |

*Size:
Ibex 35: largest capitalization in the stock exchange
Group 1, stock capitalization above 1000€ million
Group 2, stock capitalization 500 to 1000€ million
Group 3, stock capitalization 250 to 500€ million
Group 4, stock capitalization less than 250€ million

**Graph 6. Percentage of former government officials for 2004 and 2009 based on firm size.**




Size:
Ibex 35: largest capitalization in the stock exchange
Group 1, stock capitalization above 1000€ million
Group 2, stock capitalization 500 to 1000€ million
Group 3, stock capitalization 250 to 500€ million
Group 4, stock capitalization less than 250€ million

**Graph 7. Types of former government officials, both years together.**

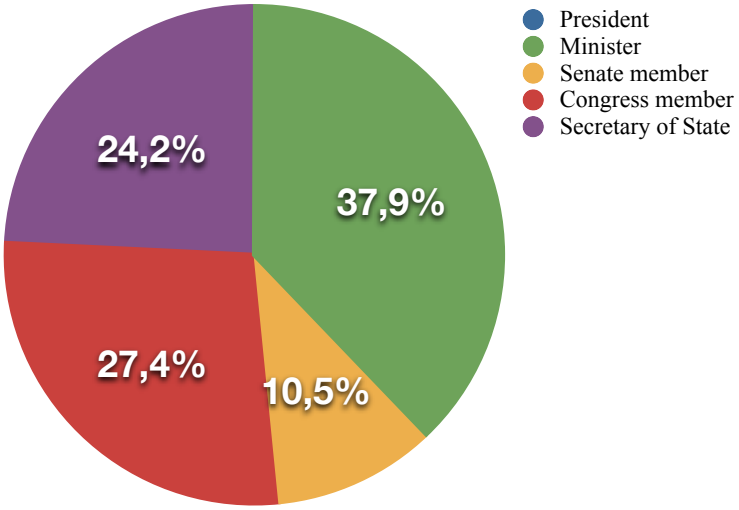



**Table 13. Number of former government officials and gender distribution.**

| | 2004 | | 2009 | |
|---|---|---|---|---|
| | Male | Female | Male | Female |
| Minister | 23 | 0 | 22 | 2 |
| Senate | 6 | 0 | 6 | 1 |
| Congress | 18 | 0 | 14 | 2 |
| Secretary of State | 14 | 0 | 16 | 0 |
| **Total** | **61** | **0** | **58** | **5** |

As table 12 shows, larger firms, IBEX 35 and Group 1, account for over 60% of former government officials in boards for both years with a very clear increase in 2009 in the number of former government officials in the IBEX 35 group. There is then full support for the second hypothesis in

both years, that is, larger firms have more former government officials in their boards than smaller firms.

The third hypothesis proposes that firms in highly regulated sectors will have more former government officials in their boards than those firms in not highly regulated sectors. Highly regulated sectors include utilities sector, electricity, banking and financial services, and chemicals. After gathering the relevant information the following tables were created.

**Table 14. Economic sectors and number of former government officials in 2004.**

| Sector | Former government officials | % | Firms |
|---|---|---|---|
| Oil, Gas and other sources | 6 | 9,84% | 7 |
| Transport and distribution | 6 | 9,84% | 5 |
| Banking | 5 | 8,20% | 14 |
| Construction | 5 | 8,20% | 7 |
| Advertising, press and R.T.V. | 5 | 8,20% | 6 |
| Electricity | 5 | 8,20% | 4 |
| Real estate | 4 | 6,56% | 21 |
| Metals | 3 | 4,92% | 5 |
| Leisure, tourism and hospitality | 3 | 4,92% | 4 |
| Telecommunications | 3 | 4,92% | 4 |
| Textile, clothing and footwear | 2 | 3,28% | 8 |
| Construction materials | 2 | 3,28% | 5 |

| Sector | Former government officials | % | Firms |
|---|---|---|---|
| Food | 2 | 3,28% | 5 |
| Portfolio and Holding | 1 | 1,64% | 11 |
| Paper and graphic arts | 1 | 1,64% | 8 |
| Electronics and software | 1 | 1,64% | 3 |
| Food and beverage | 1 | 1,64% | 3 |
| Parking and highways | 1 | 1,64% | 3 |
| Insurance | 1 | 1,64% | 2 |
| Retail | 1 | 1,64% | 2 |
| Chemical industry | 1 | 1,64% | 1 |
| Paper, wood and chemical | 1 | 1,64% | 1 |
| Pharmaceuticals | 1 | 1,64% | 1 |
| **Total** | **61** | **100%** | **130** |

**Table 15. Economic sectors and number of former government officials in 2009.**

| Sector | Former government officials | % | Firms |
|---|---|---|---|
| Electricity and Gas | 9 | 14,28% | 5 |
| Banks / Savings | 7 | 11,11% | 9 |
| Construction | 6 | 9,52% | 8 |
| Real Estate and Other | 6 | 9,52% | 25 |
| Engineering and Other | 5 | 7,93% | 8 |

| Sector | Former government officials | % | Firms |
|---|---|---|---|
| Transport / Distribution | 5 | 7,93% | 3 |
| Paper and printing | 4 | 6,34% | 5 |
| Leisure / Travel / Hospitality | 3 | 4,76% | 3 |
| Food & Beverage | 2 | 3,17% | 11 |
| Oil | 2 | 3,17% | 2 |
| Pharmaceutical Products | 2 | 3,17% | 7 |
| Renewable Energy | 2 | 3,17% | 4 |
| Communication Media and Advertising | 1 | 1,58% | 5 |
| Mineral / Metals / Processing | 1 | 1,58% | 8 |
| Textile / Clothing / Footwear | 1 | 1,58% | 6 |
| Electronics / Software | 1 | 1,58% | 3 |
| Telecommunications and Other | 1 | 1,58% | 3 |
| Equipment goods | 1 | 1,58% | 7 |
| Portfolio and Holding | 1 | 1,58% | 10 |
| Building materials | 1 | 1,58% | 3 |
| Chemical Industry | 1 | 1,58% | 2 |
| Insurance | 1 | 1,58% | 2 |
| **Total** | **63** | **100%** | **139** |

In 2004 six sectors have 52.46% of all former government officials. These sectors include utilities and banking, which are highly regulated. In 2009 again six sectors have 60.32% of all former government officials. Now, highly regulated sectors such as utilities and banking, are the top of the list. To test this hypothesis I use Levene's test which assesses the assumption that variances of the

populations from which different samples are drawn are equal. The null hypothesis is then that the population variances are equal. The following table shows the results for 2004, SPSS output.

***H₀:*** *μNumber of former government officials in regulated industries = μNumber of former government officials in non regulated industries*

***H₁:*** *μNumber of former government officials in regulated industries ≠ μNumber of former government officials in non regulated industries*

**Table 16. t test for 2004, firms in regulated sector have more former government officials in their boards.**

| | **Levene's test** | | **t-test for Equality of Means** | | | | |
|---|---|---|---|---|---|---|---|
| | **F** | **Sig** | **t** | **df** | **Sig. (bilateral)** | **Mean Difference** | **Std. Error Difference** |
| Equal variances assumed | 0,903 | 0,347 | *1,127* | *43* | *0,266* | *0,251* | *0,223* |
| Equal variances not assumed | | | 1,075 | 15,799 | 0,298 | 0,251 | 0,234 |

The significance level (*p*-value) of Levene's test is 0,347 for 2004. This value is not lower than α (0,05), then we cannot reject the null hypothesis that the variability of the two groups is equal and we focus on the first line (italic). The *p*-value for the t-test is 0,266. The rule is that if $p \leq \alpha$ , then reject $H_0$ (the null hypothesis is then that the population variances are equal). Since 0,266 is not lower than 0,05 we cannot reject the null hypotheses, that is, there is no difference in the number of

former government officials among firms in regulated sectors and firms in non regulated sectors. There is then no support for this hypothesis for the year 2004, that is, firms in highly regulated sectors will have more former government officials in their boards than those firms in not highly regulated sectors. The following table shows the results for 2009, SPSS output.

***$H_0$:*** *μNumber of former government officials in regulated industries = μNumber of former government officials in non regulated industries*

***$H_1$:*** *μNumber of former government officials in regulated industries ≠ μNumber of former government officials in non regulated industries*

**Table 17. t-test for 2009, firms in regulated sector have more former government officials in their boards.**

| | **Levene's test** | | **t-test for Equality of Means** | | | | |
|---|---|---|---|---|---|---|---|
| | **F** | **Sig** | **t** | **df** | **Sig. (bilateral)** | **Mean Difference** | **Std. Error Difference** |
| Equal variances assumed | 4,311 | 0,044 | 1,495 | 40 | 0,143 | 0,431 | 0,288 |
| Equal variances not assumed | | | *1,159* | *12,395* | *0,268* | *0,431* | *0,372* |

The significance level (*p*-value) of Levene's test is 0,044 for 2009. This value is lower than α (0,05), then we can reject the null hypothesis that the variability of the two groups is equal and we focus on the lower line (italic). The *p*-value for the t test is 0,268. The rule is that if $p \leq \alpha$ , then

reject $H_0$. Since 0,268 is not lower than 0,05 we cannot reject the null hypotheses, that is there is no difference in the number of former government officials among firms in regulated sectors and firms in non regulated sectors. There is then no support for this hypothesis for the year 2009. In both years the results show firms in highly regulated sectors do not have more former government officials in their boards than firms in not highly regulated sectors.

The fourth hypothesis proposes that firms with former government officials in their boards have better financial results (ROA) than those without former government officials in their boards. This is a direct link between former government officials and performance. The results do not support this hypothesis for either year. The following tables are adapted from SPSS output and explained afterwards.

**Table 18. t-test for 2004, former government officials in boards lead to higher ROA.**

| | **Levene's test** | | **t-test for Equality of Means** | | | | |
|---|---|---|---|---|---|---|---|
| | **F** | **Sig** | **t** | **df** | **Sig. (bilateral)** | **Mean Difference** | **Std. Error Difference** |
| Equal variances assumed | 5,143 | 0,025 | -1,327 | 157 | 0,186 | -2,983 | 2,247 |
| Equal variances not assumed | | | *-0,914* | *44,417* | *0,366* | *-2,983* | *3,263* |

Levene's test assesses the assumption that variances of the populations from which different samples are drawn are equal.

***$H_0$:*** *$\mu$ROA with former government officials = $\mu$ROA without former government officials*

***$H_1$:*** *$\mu$ROA with former government officials ≠ $\mu$ROA without former government officials*

The null hypothesis is that the population variances are equal. As we can see from the previous table, for the year 2004 with a significance level of 0,05 Levene's test has a significance level of 0,025 (smaller than 0,05) which allows us to reject the null hypothesis, that is, variances are not equal. This means we have to focus on the second (italic) line of results provided by SPSS. Here we find a t value of -0,914 and 44,4 degrees of freedom with a significance level of 0,366 (greater than 0,05). The conclusion is we can not reject the null hypothesis (the rule is that if $p \leq \alpha$, then reject $H_0$), that is, there is no difference in results (ROA) among those firms with former government officials and those without former government officials in their boards for the year 2004.

**Table 19. t-test for 2009, former government officials in boards lead to higher ROA.**

| | **Levene's test** | | **t-test for Equality of Means** | | | | |
|---|---|---|---|---|---|---|---|
| | **F** | **Sig** | **t** | **df** | **Sig. (bilateral)** | **Mean Difference** | **Std. Error Difference** |
| Equal variances assumed | 0,256 | 0,614 | *-0,098* | *142* | *0,922* | *,27466* | *2,80218* |
| Equal variances not assumed | | | -0,103 | 75,456 | 0,918 | ,27466 | 2,66321 |

As for 2009, Levene's test has a significance level of 0,614 (greater than 0,05), which does not allow us to reject the null hypothesis, that is, variances in the two groups are equal. This means we have to focus on the first (italic) line of results. Here we find a t value of -0,098 and 142 degrees of freedom with a significance level of 0,922 (greater than 0,05). The conclusion is that we can not reject the null hypothesis, that is, there is no difference in results (ROA) among those firms with former government officials and those without former government officials in their boards for the year 2009. The results show there is no difference in performance, measured as return on assets, between firms that have former government officials in their boards and those firms which do not have former government officials in their boards.

The next hypothesis, $H_5$, states that once involved in politically strategic management, firms will continue to do so. There were 45 firms in 2004 which had a former government officials in their boards. There were 42 firms in 2009 which had a former government officials in their boards. The following tables list these firms.

**Table 20. Firms in 2004 with former government officials in their boards.**

| Firm | Number of former government officials |
|---|---|
| Acerinox, S.A. | 1 |
| ACS, Actividades de Construcción y Servicios S.A. | 2 |
| Adolfo Domínguez S.A. | 1 |
| Aldeasa, S.A. | 1 |
| Amper, S.A. | 1 |

| Firm | Number of former government officials |
|---|---|
| Antena 3 de Television, S.A. | 1 |
| Avanzit, S.A. | 1 |
| Banco Español de Credito, S.A. | 1 |
| Banco Pastor, S.A. | 1 |
| Banco Santander Central Hispano, S.A. | 3 |
| Campofrio Alimentación, S.A. | 1 |
| Cartera Hotelera, S.A. | 1 |
| Cementos Molins S.A. | 1 |
| CIE Automotive, S.A. | 1 |
| Cintra Concesiones de Infraestructuras de Transporte, S.A. | 1 |
| Compañía Española de Petróleos, Sociedad Anónima | 2 |
| Compañia Logistica de Hidrocarburos CLH, S.A. | 3 |
| Corporación Mapfre, S.A. | 1 |
| Ebro Puleva, S.A. | 1 |
| Enagás, S.A. | 1 |
| Endesa, S.A. | 2 |
| Ercros, S.A. | 1 |
| Española del Zinc, S.A. | 1 |
| Fomento de Construcciones y Contratas, S.A. | 1 |
| Gestevisión Telecinco, S.A. | 1 |
| Grupo Empresarial Ence, S.A. | 1 |
| Grupo Ferrovial S.A. | 1 |
| Iberia Líneas Aéreas de España, S.A. | 3 |
| Jazztel P.L.C. | 2 |

| Firm | Number of former government officials |
|---|---|
| Metrovacesa, S.A. | 1 |
| Miquel y Costas & Miquel, S.A. | 1 |
| Natraceutical, S.A. | 1 |
| Obrascón Huarte Lain, S.A. | 1 |
| Promotora de Informaciones, S.A. | 1 |
| Red Eléctrica de España, S.A. | 2 |
| Repsol YPF S.A. | 2 |
| Sociedad Anonima Hullera Vasco-Leonesa | 1 |
| Sogecable S.A. | 2 |
| Sol Melia S.A. | 3 |
| Tavex Algodonera, S.A. | 1 |
| Tele Pizza, S.A. | 1 |
| Testa Inmuebles en Renta, S.A | 2 |
| Union Fenosa, S.A. | 1 |
| Uralita S.A. | 1 |
| Urbanizaciones y Transportes, S.A. | 1 |
| **45 firms** | **61** |

**Table 21. Firms in 2009 with former government officials in their boards.**

| Firm | Number of former government officials |
|---|---|
| Abengoa, S.A. | 1 |
| ACS, Actividades de Construccion y Servicios, S.A. | 2 |

| Firm | Number of former government officials |
|---|---|
| Adolfo Dominguez, S.A. | 1 |
| Avanzit, S.A. | 1 |
| Banco Español de Credito, S.A. | 2 |
| Banco Pastor, S.A. | 1 |
| Banco Santander, S.A. | 4 |
| Befesa Medio Ambiente, S.A. | 1 |
| Campofrio Food Group, S.A. | 1 |
| Cementos Molins, S.A. | 1 |
| CIE Automotive, S.A. | 1 |
| Compañia Española de Petroleos, S.A. | 1 |
| Corporación Financiera Alba, S.A. | 1 |
| Enagas, S.A. | 2 |
| Endesa, S.A. | 2 |
| Ercros, S.A. | 1 |
| Ferrovial, S.A. | 1 |
| Fersa Energias Renovables, S.A. | 2 |
| Fomento de Construcciones y Contratas, S.A. | 2 |
| Gamesa Corporacion Tecnologica, S.A. | 1 |
| Gas Natural SDG, S.A. | 1 |
| Gestevision Telecinco, S.A. | 1 |
| Grupo Empresarial Ence, S.A. | 3 |
| Iberia Lineas Aereas de España, S.A. | 3 |
| Inbesos, S.A. | 1 |
| Indra Sistemas, S.A. | 1 |

| Firm | Number of former government officials |
|---|---|
| Inypsa Informes y Proyectos, S.A. | 1 |
| Mapfre, S.A. | 1 |
| Martinsa-Fadesa, S.A. | 1 |
| Miquel y Costas & Miquel, S.A. | 1 |
| Natraceutical, S.A. | 1 |
| Obrascon Huarte Lain, S.A. | 1 |
| Realia Business, S.A. | 1 |
| Red Electrica Corporacion, S.A. | 4 |
| Repsol YPF, S.A. | 1 |
| Reyal Urbis, S.A. | 1 |
| Sol Meliá, S.A. | 3 |
| SOS Corporacion Alimentaria, S.A. | 1 |
| Tecnicas Reunidas, S.A. | 2 |
| Testa Inmuebles en Renta, S.A. | 2 |
| Vueling Airlines, S.A. | 2 |
| Zeltia, S.A. | 1 |
| **42 firms** | **63** |

Some firms were bought, for example, Ferrovial bought Cintra, some firms stopped their activities in the Spanish Stock Exchange, such as Aldeasa, S.A., and so on. The result is the following table.

**Table 22. Evolution of former government officials in boards. 2009 compared to 2004.**

| Number of former government officials | Firms | % |
|---|---|---|
| No Change | 18 | 34,62% |
| Increased | 18 | 34,62% |
| Decreased | 16 | 30,77% |
| **Total** | **52** | **100,00%** |

There is partial support for the fifth hypothesis: 69,23% of the firms continued to have or increased the number of former government officials in their boards.

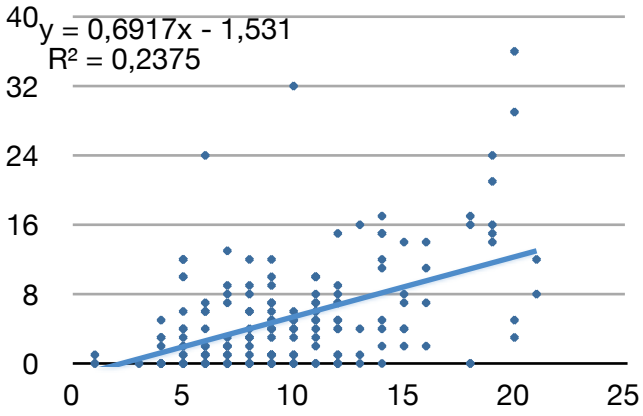
The sixth(a) hypothesis proposed that board size is positively related to the number of interlocks the firm has. IBM SPSS statistics and regression analysis was used to explain variability in the dependent variable, number of interlocks, with the explanatory variable, board size. Both years were analysed independently. Pearson's correlation coefficient was used to test the hypothesis.

**Table 23. Basic statistics for the correlation analysis. Board size and number of interlocks.**

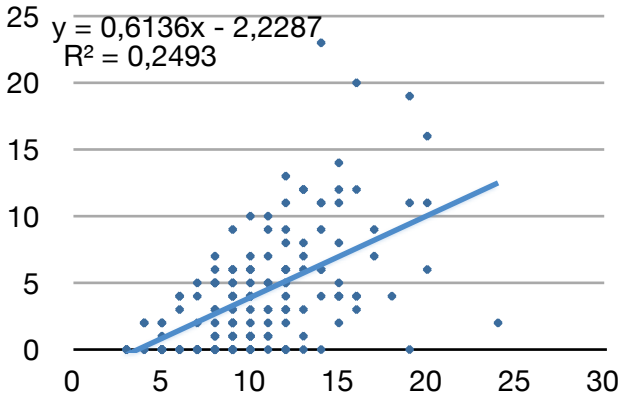
| | | Average | Standard Deviation | Pearson's Correlation Coefficient | Sig. (Bilateral) | N |
|---|---|---|---|---|---|---|
| **2004** | Board | 9,6575 | 4,3861 | | | 181 |
| | Interlocks | 5,1492 | 6,2249 | 0,4873* | 0,000 | |
| **2009** | Board | 10,4231 | 3,9087 | | | 156 |
| | Interlocks | 0,5034 | 0,5433 | 0,5278** | 0,000 | |

*Significant at 0,01 level (bilateral)
**Significant at 0,01 level (bilateral)

**Graph 8. Regression line, board size and number of interlocks in 2004.**



**Graph 9. Regression line, board size and number of interlocks in 2009.**




In both cases, Pearson's correlation coefficient is significantly different from zero, and in both cases, there is a positive association between the two variables, slightly stronger in 2009 than in 2004. In other words, when the number of board members increases, the number of interlocks the firm has also increases. There is thus support for the sixth(a) hypothesis, the number of interlocks is positively related to board size.

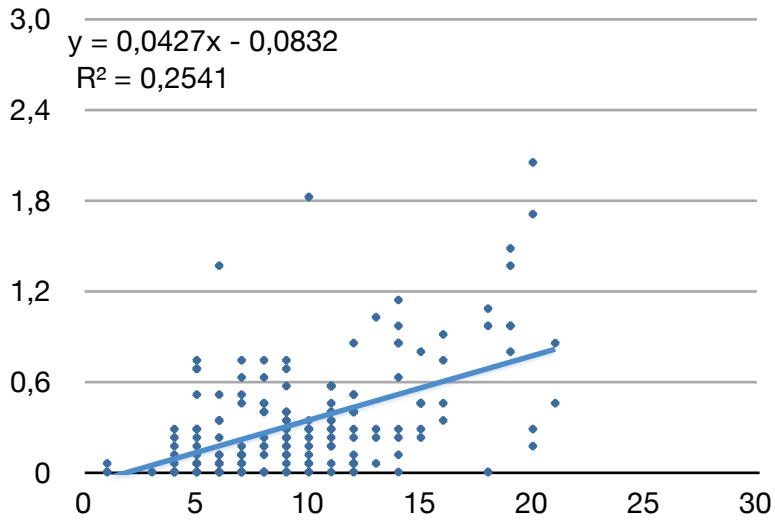
The sixth(b) hypothesis proposed the larger the board, the higher is the firm's degree centrality, that is, larger boards have a more central position in the network. IBM SPSS statistics and regression analysis was used to explain variability in the dependent variable, firm's degree centrality, with the explanatory variable, board size. Both years were analysed independently. Pearson's correlation coefficient was again used to test the hypothesis.

**Table 24. Basic statistics for the correlation analysis. The larger the board, the higher is the firm's degree centrality**

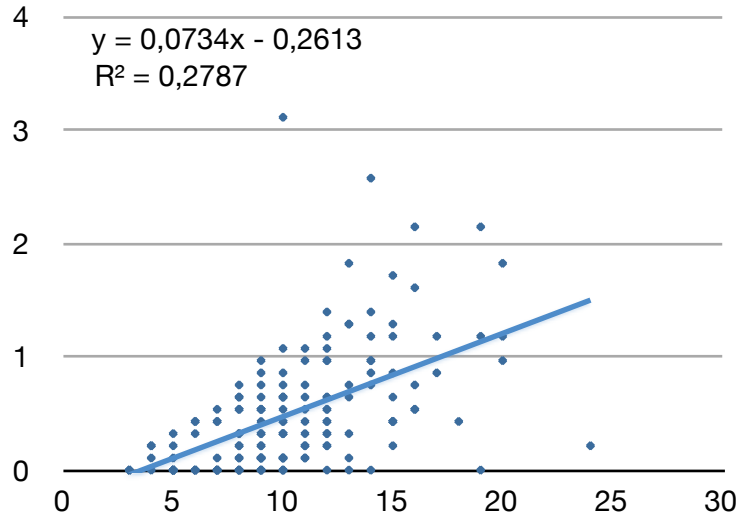
| | | Average | Standard Deviation | Pearson's Correlation Coefficient | Sig. (Bilateral) | N |
|---|---|---|---|---|---|---|
| **2004** | Board | 9,6575 | 4,3861 | | | 181 |
| | Degree | 0,3287 | 0,3711 | 0,5041* | 0,000 | |
| **2009** | Board | 10,4231 | 3,9087 | | | 156 |
| | Degree | 0,5034 | 0,5433 | 0,5278** | 0,000 | |

* Significant at 0,01 level
** Significant at 0,01 level

**Graph 10. 2004 regression analysis. The larger the board, the higher is the firm's degree centrality**



**Graph 11. 2009 regression analysis. The larger the board, the higher is the firm's degree centrality**




In both cases, as table 24 shows, Pearson's correlation coefficient is significantly different from zero, and in both cases, there is a positive association between the two variables, stronger in 2009 than in 2004. In other words, when the number of board members increases, degree centralisation also increases. There is thus support for the six(b) hypothesis for both years, the firm's degree centrality in the network is positively related to board size. The larger the board, the higher is the firm's degree centrality.

Hypothesis six(c) establishes that firm's size and the size of the board are directly related. Firms were grouped according to their size and use ANOVA to test this hypothesis. First I test if the dependent variable is normally distributed using the Kolmogorov-Smirnova test, and then testing for homogeneity of variances with Levene's test. The following tables show the results.

**Table 25. Descriptive statistics for 2004.**

| Size | Firms | Board members mean | S.D. | Standard error | Max | Min |
|---|---|---|---|---|---|---|
| IBEX 35 | 34 | 14,91 | 3,83 | 0,657 | 21 | 8 |
| Group 1 | 22 | 11,27 | 3,15 | 0,672 | 19 | 6 |
| Group 2 | 18 | 10,28 | 3,14 | 0,740 | 15 | 5 |
| Group 3 | 17 | 9,29 | 3,08 | 0,746 | 18 | 5 |
| Group 4 | 90 | 7,22 | 3,20 | 0,337 | 20 | 1 |
| **Total** | **181** | **9,66** | **4,386** | **0,326** | **21** | **1** |

**Table 26. Normality test for 2004.**

| Size | Kolmogorov - Smirnov[a] | df | Sig. | Shapiro - Wilk | df | Sig |
|---|---|---|---|---|---|---|
| IBEX 35 | 0,143 | 34 | 0,077 | 0,942 | 34 | 0,07 |
| Group 1 | 0,174 | 22 | 0,083 | 0,955 | 22 | 0,398 |
| Group 2 | 0,153 | 18 | 0,200* | 0,938 | 18 | 0,267 |
| Group 3 | 0,174 | 17 | 0,181 | 0,899 | 17 | 0,066 |
| Group 4 | 0,128 | 90 | 0,001 | 0,939 | 90 | 0 |

*. Lower limit with significance
a. Lilliefors test correction

Due to the size of the sample this dissertation uses the results provided by the Kolmogorov-Smirnov test which show that all categories ($p$-value > 0,05) except Group 4 (the smaller size firms) are normally distributed.

**Table 27. Levene's test for homogeneity of variances in 2004.**

| F | df1 | df2 | Sig. |
|---|---|---|---|
| 1,302 | 4 | 176 | 0,271 |

Since the significance level is greater than 0,05 (0,271 > 0,05) we cannot reject $H_0$, that is, there is homogeneity of variances in 2004.

**Table 28. One way ANOVA for 2004.**

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between groups | 1538,967 | 4 | 384,742 | 35,198 | 0,000 |
| Within Groups | 1923,795 | 176 | 10,931 | | |
| **Total** | **3462,762** | **180** | | | |

The significance level of 0,000, lower than 0,05, tells us there is a statistically significant difference in the mean between board size and firm size in 2004. There is then support for the hypothesis, that is, the larger the firm, the larger the board size in the firms analysed in 2004.

**Table 29. Descriptive statistics for 2009.**

| Size | Firms | Board members | Mean | S.D. | Max | Min |
|---|---|---|---|---|---|---|
| IBEX 35 | 34 | 490 | 14,41 | 3,569 | 24 | 9 |
| Group 1 | 14 | 154 | 11,00 | 2,512 | 16 | 7 |
| Group 2 | 17 | 181 | 10,65 | 2,090 | 14 | 6 |
| Group 3 | 24 | 268 | 11,17 | 3,017 | 19 | 5 |
| Group 4 | 67 | 533 | 7,96 | 3,062 | 20 | 3 |
| **Total** | **156** | **1626** | **10,42** | **3,909** | **24** | **3** |

**Table 30. Normality test for 2009**

| Size | Kolmogorov - Smirnov[a] | df | Sig. | Shapiro - Wilk | df | Sig |
|---|---|---|---|---|---|---|
| IBEX 35 | 0,111 | 34 | ,200* | 0,961 | 34 | 0,262 |
| Group 1 | 0,144 | 14 | ,200* | 0,974 | 14 | 0,93 |
| Group 2 | 0,155 | 17 | ,200* | 0,96 | 17 | 0,633 |
| Group 3 | 0,141 | 24 | ,200* | 0,965 | 24 | 0,549 |
| Group 4 | 0,133 | 67 | 0,005 | 0,933 | 67 | 0,001 |

*. Lower limit with significance
a. Lilliefors test correction

Due to the size of the sample this dissertation uses the results provided by the Kolmogorov-Smirnov test which show that all categories except Group 4 (the smaller size firms) are normally distributed.

**Table 31. Levene's test for homogeneity of variances in 2009.**

| F | df1 | df2 | Sig. |
|---|---|---|---|
| 1,234 | 4 | 151 | 0,299 |

Since the significance level is greater than 0,05 (0,299 > 0,05) we cannot reject $H_0$, that is, there is homogeneity of variances in 2009.

**Table 32. One way ANOVA for 2009.**

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between groups | 967,76 | 4 | 241,94 | 26,089 | 0,000 |
| Within Groups | 1400,317 | 151 | 9,274 | | |
| **Total** | **2368,077** | **155** | | | |

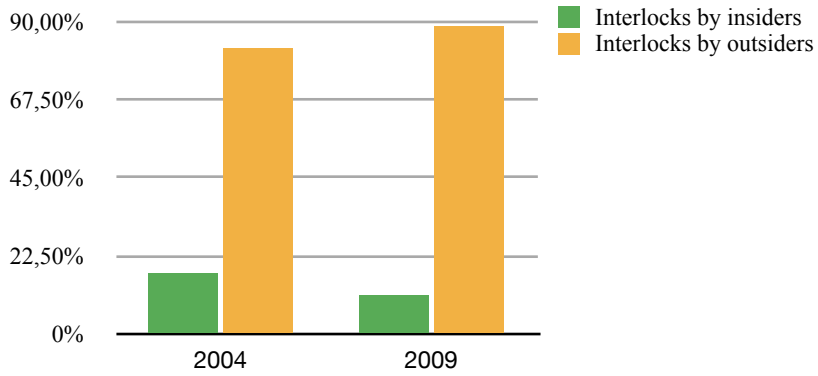
The significance level of 0,000, lower than 0,05, tells us there is a statistically significant difference in the mean between board size and firm size in 2009. There is then support for the hypothesis, that is, the larger the firm, the larger the board size.

The seventh(a) hypothesis proposed that outsiders on corporate boards provide most of the interlocks the board has. As can be seen in next table, in 2004 outsiders provided 82,40% of all interlocks and in 2009 the percentage increased to 88,76%. In both years, outsiders provided most of the interlocks firms have. There is then full support for the seventh(a) hypothesis.

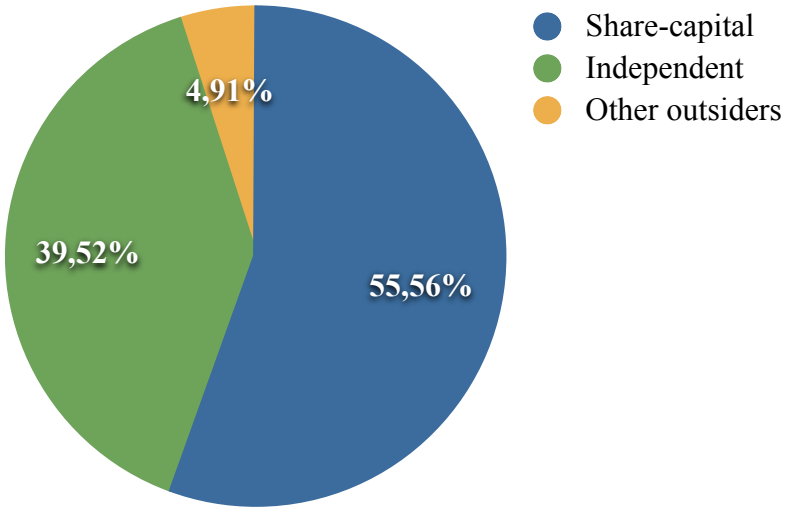
**Table 33. Percentage of interlocks provided by outsiders.**

| | % Insiders | % Interlocks by insiders | % Outsiders | % Interlocks by outsiders |
|---|---|---|---|---|
| 2004 | 20,824% | 17,597% | 79,176% | 82,403% |
| 2009 | 18,512% | 11,231% | 81,488% | 88,769% |

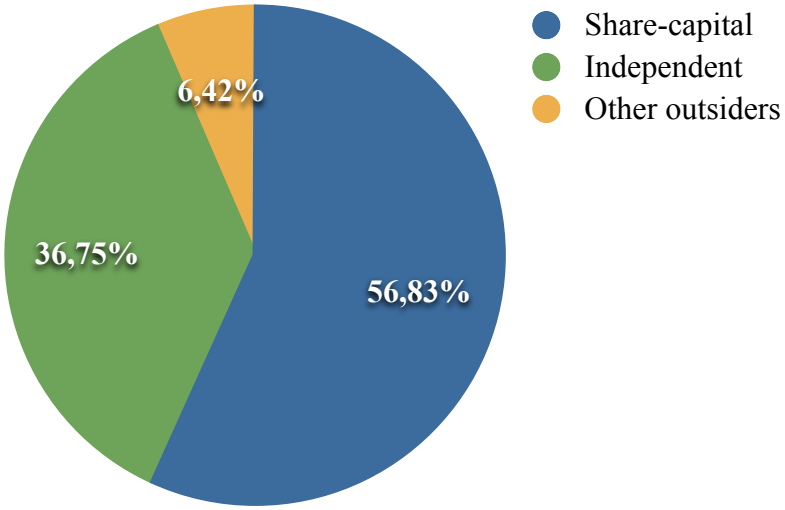
**Graph 12. Percentage of interlocks provided by outsiders for both years.**




**Graph 13. Types of outsiders in 2004.**



**Graph 14.** Types of outsiders in 2009.



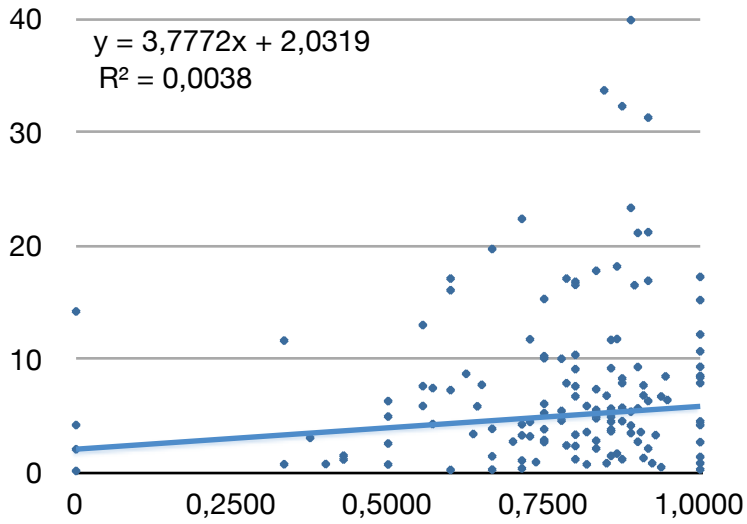

Hypothesis seven(b), proposes that higher percentage of outsiders in the board leads to higher financial results (ROA) by the firm. IBM SPSS statistics and regression analysis was used to explain variability in the dependent variable, performance, with the explanatory variable, higher percentage of outsiders. Both years were analysed independently. Pearson's correlation coefficient was used to test the hypothesis.

**Table 34. Basic statistics for the correlation analysis. Higher percentage of outsiders leads to higher performance (ROA)**

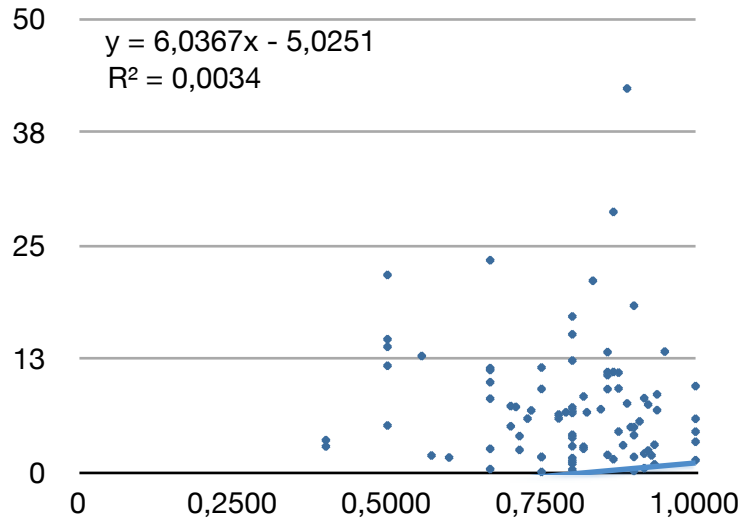
| | | Average | S.D. | Pearson's Correlation Coefficient | Sig. (Bilateral) | N |
|---|---|---|---|---|---|---|
| **2004** | Outsiders | 0,76304 | 0,2021 | | | 159 |
| | ROA | 4,91403 | 12,4264 | 0,06143 | 0,4418 | |

| | | Average | S.D. | Pearson's Correlation Coefficient | Sig. (Bilateral) | N |
|---|---|---|---|---|---|---|
| **2009** | Outsiders | 0,79833 | 0,1439 | | | 143 |
| | ROA | -0,2058 | 14,9436 | 0,05812 | 0,49049 | |

**Graph 15. 2004 regression analysis. Higher percentage of outsiders leads to higher performance (ROA).**



**Graph 16. 2009 regression analysis. Higher percentage of outsiders leads to higher performance (ROA).**




In both years Pearson's correlation coefficients of 0,061 for 2004 and 0,058 for 2009, have very low values, close to 0, along with such high significance levels, 0,44 for 2004 and 0,49 for 2009, there is no relationship among the variables or this relationship is negligible. There is no support for hypothesis $7_b$ for either year.

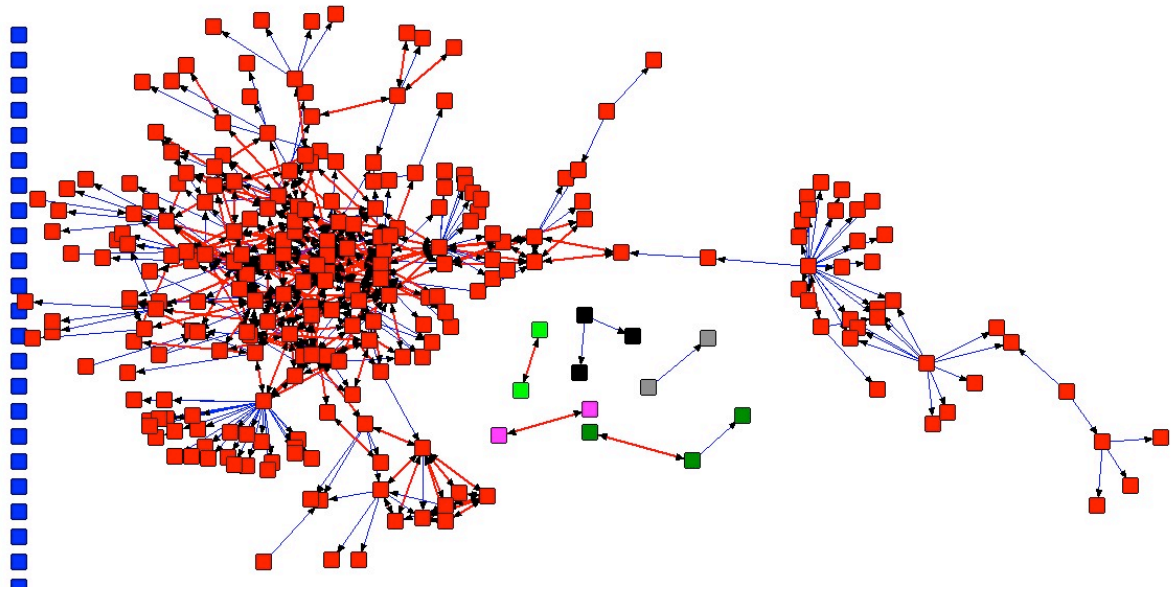
The eighth hypothesis proposed that network density increases over time, following a particular strategy stated by firms, the number of interlocks would increase. The following table, adapted from UCINET output, compares density and centralisation values between the two selected years.

**Table 35. Density and centralisation. Years 2004 and 2009.**

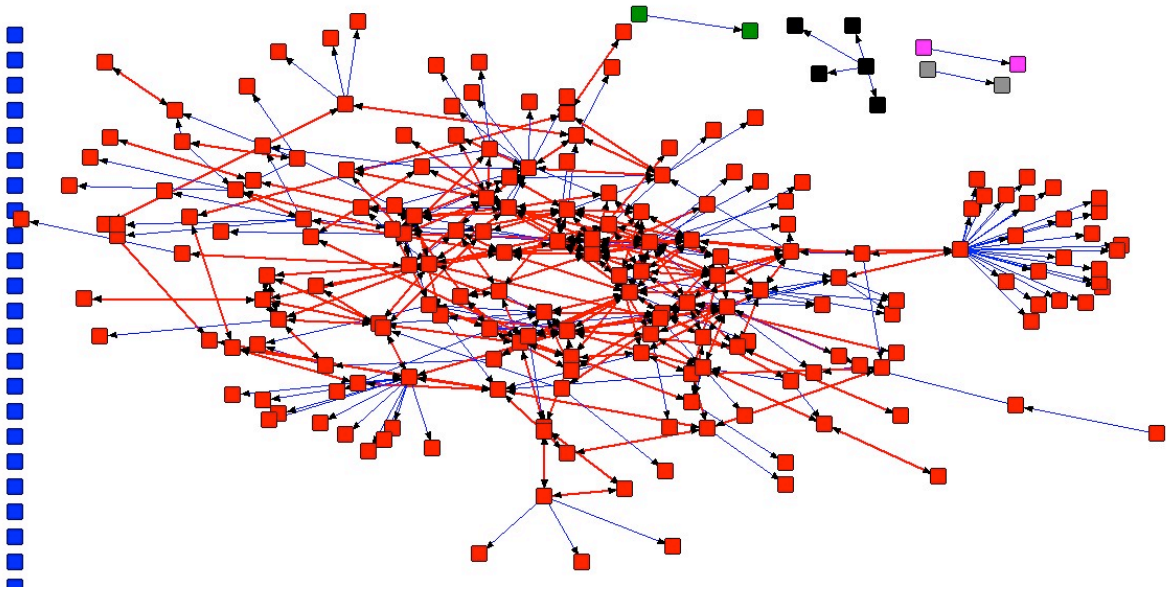
| | 2004 | 2009 |
|---|---|---|
| Density | 1,08% | 1,19% |
| Centralisation | 1,83% | 2,76% |

The two values analysed here, density and network centralisation, refer to specific features of the network, that is, the structure of the network. With a small increase in density, there is support for the hypothesis, namely network density increases over time. The following graphs, NetDraw output, show the network created by the samples through their interlocks for the years analysed as well as the isolated firms. The different colours are groupings of firms, for example, isolates are blue.

**Graph 17. Interlocks in 2004. Squares represent firms. Lines represent interlocks.**



**Graph 18.** Interlocks in 2009. Squares represent firms. Lines represent interlocks.



As for the next hypothesis, which proposed that the number of isolates decreases over time, in 2004 there were 49 isolates out of 181 firms (27,07%) and in 2009 there were 44 isolates out of 156 firms (28,21%). There is no support for the hypothesis since the number of isolates does not decrease over time but increases.

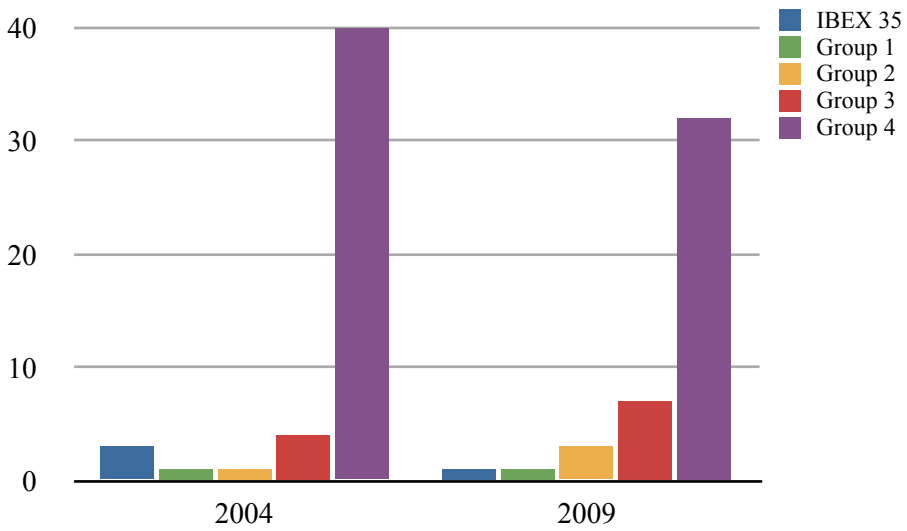
**Table 36. Isolates grouped by year and size of the firm.**

| **Size*** | **2004** | | | **2009** | | |
|---|---|---|---|---|---|---|
| Firms | Isolates | Firms | % | Isolates | Firms | % |
| IBEX 35 | 3 | 34 | 8,82% | 1 | 34 | 2,94% |
| Group 1 | 1 | 22 | 4,55% | 1 | 14 | 7,14% |
| Group 2 | 1 | 18 | 5,56% | 3 | 17 | 17,65% |

| Size* | 2004 | | | 2009 | | |
|---|---|---|---|---|---|---|
| Group 3 | 4 | 17 | 23,53% | 7 | 24 | 29,17% |
| Group 4 | 40 | 90 | 44,44% | 32 | 67 | 47,76% |
| **Total** | **49** | **181** | **27,07%** | **44** | **156** | **28,21%** |

*Size:
Ibex 35: largest capitalization in the stock exchange
Group 1, stock capitalization above 1000€ million
Group 2, stock capitalization 500 to 1000€ million
Group 3, stock capitalization 250 to 500€ million
Group 4, stock capitalization less than 250€ million

**Graph 19. Isolated firms grouped by year and size of the firm**




*Size
Ibex 35: largest capitalization in the stock exchange
Group 1, stock capitalization above 1000€ million
Group 2, stock capitalization 500 to 1000€ million
Group 3, stock capitalization 250 to 500€ million
Group 4, stock capitalization less than 250€ million

**Table 37. Isolated firms by sector in 2004.**

| Sector | Number of firms | Average board size | S.D. |
|---|---|---|---|
| Advertising, press and R.T.V. | 1 | 13 | |
| Beverages and tobacco | 2 | 2,5 | 2,1213 |
| Construction materials | 1 | 6 | |
| Engineering and others | 1 | 6 | |
| Insurance | 2 | 16 | 2,8284 |
| Leisure, tourism and hospitality | 1 | 11 | |
| Manufacture and assembly equipment | 4 | 8,25 | 4,113 |
| Metals | 2 | 11 | 1,4142 |
| Mineral / Metals / Processing | 1 | 6 | |
| Oil, Gas and other sources | 2 | 8 | 1,4142 |
| Other consumer goods | 1 | 6 | |
| Other market services | 2 | 7,5 | 0,7071 |
| Paper and graphic arts | 3 | 6,33 | 2,0817 |
| Portfolio and Holding | 4 | 6 | 2,708 |
| Portfolio companies | 3 | 6 | 3 |
| Real estate | 11 | 7,64 | 4,2255 |
| Real estate and other | 2 | 4 | 4,2426 |
| Renewable Energy | 1 | 10 | |
| Retail | 1 | 7 | |
| Telecommunications | 1 | 9 | |

| Sector | Number of firms | Average board size | S.D. |
|---|---|---|---|
| Textile, clothing and footwear | 3 | 7 | 4,3589 |
| **Total** | **49** | **7,82** | |

We can also see that in 2009 the real state sector is still the one with the highest number of isolated firms.

**Table 38. Isolated firms by sector in 2009.**

| Sector | Number of firms | Average board size | S.D. |
|---|---|---|---|
| Engineering and Other | 4 | 9,25 | 2,2174 |
| Construction | 1 | 10 | |
| Mineral / Metals / Processing | 4 | 8,25 | 2,5000 |
| Real Estate and Other | 14 | 7 | 4,0950 |
| Textile / Clothing / Footwear | 2 | 7 | 2,8284 |
| Telecommunications and Other | 1 | 9 | |
| Equipment goods | 2 | 5 | 2,8284 |
| Banks / Savings | 1 | 13 | |
| Food & Beverage | 1 | 5 | |
| Investment Services | 1 | 9 | |
| Portfolio and Holding | 3 | 5,33 | 0,5774 |
| Other Services | 2 | 8 | 0,0000 |

| Sector | Number of firms | Average board size | S.D. |
|---|---|---|---|
| Leisure / Travel / Hospitality | 1 | 9 | |
| Agriculture and fisheries | 1 | 9 | |
| Pharmaceutical Products | 1 | 6 | |
| Renewable Energy | 3 | 8,33 | 3,5119 |
| Investment Funds | 1 | 12 | |
| Insurance | 1 | 14 | |
| **Total** | **44** | **8,56** | |

The tenth hypothesis proposed that banks have a central position in the network. The following tables, UCINET output, list the top 10% of firms (higher normalised degree) for 2004 and 2009, and their activity sectors.

**Table 39. 2004 firms, top 10%. Normalised degree > 0,853.**

| Firm | Degree | Activity |
|---|---|---|
| Promotora de Informaciones, S.A. | 2,048 | Advertising, press and RTV |
| Miquel y Costas & Miquel, S.A. | 1,82 | Paper and graphic arts |
| Unión Fenosa, S.A. | 1,706 | Utilities, Electricity |
| Telefónica, S.A. | 1,479 | Telecommunications |
| Banco Santander Central Hispano, S.A. | 1,365 | Banking |
| Inmo Dealer, S.A. | 1,365 | Real estate |
| Sacyr Vallehermoso, S.A. | 1,138 | Construction |

| Firm | Degree | Activity |
|---|---|---|
| Acs, Actividades de Construcción y Servicios S.A. | 1,081 | Construction |
| NH Hoteles, S.A. | 1,024 | Leisure, tourism and hospitality |
| Abertis Infraestructuras, S.A. | 0,967 | Car parks and motorways |
| Altadis, S.A. | 0,967 | Beverages and tobacco |
| Banco Popular Español, S.A. | 0,967 | Banking |
| Repsol YPF, S.A. | 0,967 | Oil, gas and other sources |
| Enagás, S.A. | 0,91 | Oil, gas and other sources |
| Ebro Puleva, S.A. | 0,853 | Food |
| Iberia Líneas Aéreas de España, S.A. | 0,853 | Transportation and distribution |
| Sogecable, S.A. | 0,853 | Advertising, press and RTV |
| Telefónica Móviles, S.A. | 0,853 | Telecommunications |

**Table 40. 2009 firms, top 10%. Normalised degree > 1,18.**

| Firm | Degree | Activity |
|---|---|---|
| Miquel y Costas & Miquel, S.A. | 3,112 | Paper and printing |
| Promotora de Informaciones, S.A. | 2,575 | Communication Media and Advertising |
| ACS. Actividades de Construcción y Servicios, S.A. | 2,146 | Construction |
| Repsol YPF, S.A. | 2,146 | Oil |
| Abertis Infraestructuras, S.A. | 1,824 | Highways/Parking |
| Sacyr Vallehermoso, S.A. | 1,824 | Construction |
| Cartera Industrial Rea, S.A. | 1,717 | Portfolio and Holding |
| Criteria Caixacorp, S.A. | 1,609 | Portfolio and Holding |

| Firm | Degree | Activity |
|---|---|---|
| Corporación Financiera Alba, S.A. | 1,395 | Portfolio and Holding |
| Grupo Empresarial Ence, S.A. | 1,395 | Paper and printing |
| Iberdrola, S.A. | 1,288 | Electricity and Gas |
| NH Hoteles, S.A. | 1,288 | Leisure/Travel/Hospitality |
| Pescanova, S.A. | 1,288 | Food & Beverage |
| Banco Santander, S.A. | 1,18 | Banks/Savings |
| Fomento de Construcciones y Contratas, S.A. | 1,18 | Construction |
| Gas Natural SDG, S.A. | 1,18 | Electricity and Gas |
| Grupo Ferrovial, S.A. | 1,18 | Construction |
| Indra Sistemas, S.A. | 1,18 | Electronics/Software |
| Realia Business, S.A. | 1,18 | Real Estate and Other |

**Table 41. Sectors ranked as for number of interlocks in 2004.**

| Sector | Number of firms | % Firms | Board members | % Board members | Interlocks | % Interlocks |
|---|---|---|---|---|---|---|
| Banking | 14 | 7,73% | 146 | 8,35% | 117 | 12,55% |
| Real estate | 21 | 11,60% | 167 | 9,55% | 68 | 7,30% |
| Construction | 7 | 3,87% | 88 | 5,03% | 62 | 6,65% |
| Electricity | 4 | 2,21% | 67 | 3,83% | 59 | 6,33% |
| Advertising, press and R.T.V. | 6 | 3,31% | 86 | 4,92% | 56 | 6,01% |
| Oil, Gas and other sources | 7 | 3,87% | 86 | 4,92% | 53 | 5,69% |
| Paper and graphic arts | 8 | 4,42% | 71 | 4,06% | 45 | 4,83% |
| Real estate and other | 8 | 4,42% | 50 | 2,86% | 42 | 4,51% |

| Sector | Number of firms | % Firms | Board members | % Board members | Interlocks | % Interlocks |
|---|---|---|---|---|---|---|
| Telecommunications | 4 | 2,21% | 51 | 2,92% | 40 | 4,29% |
| Food | 5 | 2,76% | 45 | 2,57% | 39 | 4,18% |
| Portfolio and Holding | 11 | 6,08% | 82 | 4,69% | 38 | 4,08% |
| Transport and distribution | 5 | 2,76% | 58 | 3,32% | 36 | 3,86% |
| Parking and highways | 3 | 1,66% | 39 | 2,23% | 30 | 3,22% |
| Other market services | 6 | 3,31% | 53 | 3,03% | 26 | 2,79% |
| Other consumer goods | 4 | 2,21% | 33 | 1,89% | 22 | 2,36% |
| Manufacture and assembly equipment | 9 | 4,97% | 77 | 4,41% | 19 | 2,04% |
| Electronics and software | 3 | 1,66% | 32 | 1,83% | 18 | 1,93% |
| Leisure, tourism and hospitality | 4 | 2,21% | 46 | 2,63% | 18 | 1,93% |
| Construction materials | 5 | 2,76% | 53 | 3,03% | 18 | 1,93% |
| Textile, clothing and footwear | 8 | 4,42% | 66 | 3,78% | 18 | 1,93% |
| Drinks and Tobacco | 1 | 0,55% | 18 | 1,03% | 16 | 1,72% |
| Food and beverage | 3 | 1,66% | 32 | 1,83% | 16 | 1,72% |
| Portfolio companies | 4 | 2,21% | 25 | 1,43% | 13 | 1,39% |
| Beverages and tobacco | 7 | 3,87% | 42 | 2,40% | 9 | 0,97% |
| Telecommunications and other | 1 | 0,55% | 11 | 0,63% | 7 | 0,75% |
| Metals | 5 | 2,76% | 55 | 3,15% | 7 | 0,75% |
| Chemical industry | 1 | 0,55% | 8 | 0,46% | 6 | 0,64% |
| Financing and Insurance | 1 | 0,55% | 6 | 0,34% | 6 | 0,64% |
| Paper, wood and chemical | 1 | 0,55% | 11 | 0,63% | 5 | 0,54% |
| Pharmaceuticals | 1 | 0,55% | 4 | 0,23% | 5 | 0,54% |

| Sector | Number of firms | % Firms | Board members | % Board members | Interlocks | % Interlocks |
|---|---|---|---|---|---|---|
| Mineral / Metals / Processing | 2 | 1,10% | 17 | 0,97% | 4 | 0,43% |
| Other services | 2 | 1,10% | 16 | 0,92% | 4 | 0,43% |
| Retail | 2 | 1,10% | 21 | 1,20% | 4 | 0,43% |
| Water | 2 | 1,10% | 27 | 1,54% | 3 | 0,32% |
| Agriculture and fisheries | 1 | 0,55% | 5 | 0,29% | 2 | 0,21% |
| Investment funds | 1 | 0,55% | 6 | 0,34% | 1 | 0,11% |
| Engineering and others | 1 | 0,55% | 6 | 0,34% | 0 | 0,00% |
| Renewable Energy | 1 | 0,55% | 10 | 0,57% | 0 | 0,00% |
| Insurance | 2 | 1,10% | 32 | 1,83% | 0 | 0,00% |
| **Total** | **181** | **100%** | **1.748** | **100%** | **932** | **100%** |

**Table 42. Sectors ranked as for number of interlocks in 2009.**

| Sector | Number of firms | % Firms | Board members | % Board members | Interlocks | % Interlocks |
|---|---|---|---|---|---|---|
| Construction | 8 | 5,13% | 105 | 6,46% | 65 | 10,00% |
| Portfolio and Holding | 10 | 6,41% | 86 | 5,29% | 53 | 8,15% |
| Paper and printing | 5 | 3,21% | 51 | 3,14% | 49 | 7,54% |
| Food & Beverage | 11 | 7,05% | 104 | 6,40% | 49 | 7,54% |
| Real Estate and Other | 25 | 16,03% | 197 | 12,12% | 45 | 6,92% |
| Communication Media and Advertising | 5 | 3,21% | 66 | 4,06% | 40 | 6,15% |
| Banks / Savings | 9 | 5,77% | 124 | 7,63% | 37 | 5,69% |
| Electricity and Gas | 5 | 3,21% | 67 | 4,12% | 30 | 4,62% |

| Sector | Number of firms | % Firms | Board members | % Board members | Interlocks | % Interlocks |
|---|---|---|---|---|---|---|
| Equipment goods | 7 | 4,49% | 59 | 3,63% | 27 | 4,15% |
| Oil | 2 | 1,28% | 29 | 1,78% | 26 | 4,00% |
| Electronics / Software | 3 | 1,92% | 35 | 2,15% | 24 | 3,69% |
| Pharmaceutical Products | 7 | 4,49% | 61 | 3,75% | 22 | 3,38% |
| Mineral / Metals / Processing | 8 | 5,13% | 83 | 5,10% | 21 | 3,23% |
| Engineering and Other | 8 | 5,13% | 85 | 5,23% | 20 | 3,08% |
| Highways / Parking | 1 | 0,64% | 20 | 1,23% | 16 | 2,46% |
| Transport / Distribution | 3 | 1,92% | 44 | 2,71% | 15 | 2,31% |
| Textile / Clothing / Footwear | 6 | 3,85% | 51 | 3,14% | 15 | 2,31% |
| Leisure / Travel / Hospitality | 3 | 1,92% | 34 | 2,09% | 14 | 2,15% |
| Building materials | 3 | 1,92% | 38 | 2,34% | 13 | 2,00% |
| Telecommunications and Other | 3 | 1,92% | 36 | 2,21% | 11 | 1,69% |
| Other Services | 5 | 3,21% | 40 | 2,46% | 11 | 1,69% |
| Equipment Manufacturing | 1 | 0,64% | 11 | 0,68% | 9 | 1,38% |
| Biotechnology | 1 | 0,64% | 12 | 0,74% | 9 | 1,38% |
| Water and other | 2 | 1,28% | 26 | 1,60% | 8 | 1,23% |
| Other Consumer Goods | 2 | 1,28% | 19 | 1,17% | 5 | 0,77% |
| Retail | 1 | 0,64% | 10 | 0,62% | 4 | 0,62% |
| Chemical Industry | 2 | 1,28% | 10 | 0,62% | 4 | 0,62% |
| Renewable Energy | 4 | 2,56% | 40 | 2,46% | 4 | 0,62% |
| Investment Services | 2 | 1,28% | 24 | 1,48% | 2 | 0,31% |
| Insurance | 2 | 1,28% | 38 | 2,34% | 2 | 0,31% |

| Sector | Number of firms | % Firms | Board members | % Board members | Interlocks | % Interlocks |
|---|---|---|---|---|---|---|
| Agriculture and fisheries | 1 | 0,64% | 9 | 0,55% | 0 | 0,00% |
| Investment Funds | 1 | 0,64% | 12 | 0,74% | 0 | 0,00% |
| **Total** | **156** | **100%** | **1626** | **100%** | **650** | **100%** |

In both years, banks are no longer at the core of the network. There are only two banks in 2004 and only one in 2009. There is then no support for the tenth hypothesis, banks do not have a central position in the network. There has been a shift in the structure of the network in recent years.

# CHAPTER 5: DISCUSSION AND CONCLUSIONS

The hypotheses presented here are strongly rooted in resource dependence theory. The resources available to the firm can be financial, human, and so on. Resources are limited, resources are valuable for the firm, and the appropriate use of these resources as well as obtaining them can give an advantage to firms. After all, firms are not isolated individuals able to do as they wish. There are competitors, there are shareholders, there are customers, there are suppliers, there are governments, there are always a number of different stakeholders with different claims on the firm who can limit its activities or provide opportunities. Firms need to know which resources are available to them and how to better use them to gain a competitive advantage. This dissertation analyses one of the many resources firms have, its board of directors. They provide knowledge, expertise, and links with the outside which can help firms to survive, grow, and perform better through time.

But one theory cannot explain everything that happens in the board. That's why this dissertation besides resource dependence theory also uses agency theory, which has been for years the leading theory to study boards, as well as social theory, where links with the outside can be more important than expertise in certain areas; and new institutionalism, firms imitate each other. The purpose is to combine these theories to better understand the different paths firms follow to improve performance. This leads to a holistic framework since theories have limitations and therefore, we need to use several theories to be able to have a deeper understanding of the internal processes in corporate governance in general and in board of directors in particular. Resource dependence theory, social theory and agency theory provide complementary insights into the functioning of the board. "...no single theory offers a complete explanation of the corporate governance–corporate

performance relationship, but rather elements of each theory can be seen to apply in different circumstances" (Kiel and Nicholson, 2003: 201). Resource dependence theory is used at a macro level, that is, the environment is an external force which affects all aspects of the firm by either limiting its actions or by providing opportunities to the firm. At the same time, the firm needs resources from the environment to survive and improve performance. Agency theory, at the micro level, stresses the need to monitor management to avoid agency costs. The link between the macro level, resource dependence theory, and the micro level, agency theory, is provided by the board of directors. Board's duty is twofold, on one hand they must monitor management, on the other hand, they must screen the environment to obtain resources for the firm. Board's importance makes it the main focus of analysis in a number of theories.

The results provide mixed support for the resource dependence theory hypotheses. This dissertation has divided the hypotheses in two groups. The first group deals with former government officials and their relevance in the the board. The second group of hypotheses deals with interlocks and the network they create. Former government officials have become in recent the years a relevant factor to study since their numbers have continuously increased in boards, not only in Spain but in all Western countries. But just because a board chooses a former government official to sit in the board it does not mean the firm is going to "fly the party flag", similar to what Stark and Vedres (2012) found in their study of Hungarian boards. There must be a reason, a strategy, for firms to hire them. Firms must perceive they are obtaining some advantage when appointing former government officials to their boards. "...to remain competitive, organizations must repeatedly acquire high-quality human assets from external sources, even though information ambiguity and information asymmetry make this process difficult" (Williamson and Cable, 2003: 354). Former government officials are then a scarce resource firms use for their own benefit. Nevertheless, as we have seen,

former government officials do not improve performance. At the same time, former government officials and all other members of the board when sitting in different boards they create interlocks and a network is then created. This is another strategy firms use, a resource they have, in order to be able, for example, to better know the environment or to have access to better financing conditions. Here, for example, we find agency theory since links with banks lead to board members' increase supervision of management.

This dissertation argues that former government officials play an important role not by providing expertise and knowledge about the industry to the firm, hypothesis $1_b$, but by providing links with the external environment, hypothesis $1_a$. These links may help the firm to better understand and later on adapt or try to modify the political environment. Therefore, former government officials are, after all, a vital resource firms use. Table 9, table 10, and table 11, along with graph 3 and graph 4 lead to graph 5, which can help us understand hypothesis $1_a$, that is, former government officials are, due to their educational background, community influentials as well as hypothesis $1_b$, former government officials' background does not match their committee activities. What we see in those tables and graphs is that in both years, most former government officials have a background education in law, whereas the firms are not law related. Furthermore, former government officials participate in committees which do not match their educational background. This dissertation posits these tables and graphs show that most former government officials are selected to the board not because of their specific industry expertise or because they are business experts, following Hillman et al. (2000) typology, but because of their links outside the board which may help the firm achieve its goals. Former government officials are then community influentials, hypothesis $1_a$. There is also full support for the hypothesis $1_b$, that is, former government officials' background does not match their committee activities, since most educational backgrounds (58,21% in 2004 and 52,17% in

2009) do not match committee requirements. Former government officials are community influentials. They are hired because of the people they know and the relationships they have outside the firm, in particular, with their own political parties. According to resource dependence theory this a way for firms to be able to scout the political environment as well as a way to try to modify it if necessary. It is in most cases a proactive strategy which should lead to better performance.

Further analysis of the data shows that most former government officials who in 2009 participate in a committee do it, in most cases, in the appointments and remuneration committee. In 2004, the committee with the highest number of former government officials was the audit committee. These two committees, along with the executive one, account for over 85% of all former government officials. These results are relevant for both, scholars and practitioners. It helps understand scholars some of the processes and strategies within the board. Board members are a resource for the firm and they are expected to support the firm and to provide resources. On the other hand, practitioners, once they know the objectives firms have and the resources they need, they can easily select board members in the future. When selecting a new board member, based on the strategy and objectives the firm has, they may choose a former government official.

The second hypotheses proposes that larger firms will include more former government officials as outsiders. This is directly related to resource dependence theory. The rational behind this hypothesis is that larger firms face complicated external environments and therefore need a specific resource, former government officials, in order to, if necessary, manipulate these environments so they do not affect the overall performance of the firm. Also, these resources, former government officials, are scarce and expensive, therefore, only larger firms can afford to use it. The results show, table 12, that larger firms account for over 60% of all former government officials in both years.

Further analysis of the information gathered for this hypothesis shows that it is former ministers and congress members the groups that provide most of the former government officials, while senate members provide only 10,48% of the former government officials. Another interesting fact is that none of the former presidents is in a board, even though two of them have worked as high management directives for firms, a group not included in this sample. Yet further analysis shows us that the former government officials club is mainly a men's club, with only five women as former government officials in 2009. That is, there is barely any diversification in boards when it comes to gender. Trend that at least in 2009 is changing.

This hypothesis is firmly rooted in resource dependence theory. Even though former government officials are a valuable resource for the firm, not all former government officials are equally relevant. This is very important information and contribution. Former ministers and members of the congress are more prone to join boards than senate members. At the same time, table 13 shows us there is major gap among genders. Women are barely represented in boards. For scholars, the results show how larger firms cope with the external environment, through hiring former government officials and which specific former government officials are chosen. It can also help practitioners to narrow down the candidates since, as mentioned before, not all former government officials are equally relevant.

The third hypothesis proposed that firms in highly regulated sectors, utilities sector, electricity, banking and financial services, and chemicals, will have more former government officials in their boards. Highly regulated sectors imply the government uses continuous and extensive control over the firms as well as as ever changing and rigid laws. It makes sense for firms to try to co-opt some

of the members of the political environment, former government officials, who can bring knowledge and expertise which might not be available to other board members. Resource dependence theory explains this and new institutionalism explains why the number of firms using this strategy continues to grow through imitation. A strategy perceived as successful is imitated by other firms. Unfortunately, table 16 and table 17 show there is no support for this hypothesis, which is contrary to what resource dependence theory states. For scholars the results are relevant since they seem to contradict resource dependence theory. I posit, nevertheless, that even though there is no direct link between industry regulation and the number of former government officials, resource dependence theory still applies since former government officials must provide other resources to the firm. For practitioners the implications are clear. In order to manage a highly supervised industry they must find other means besides former government officials. Investing in this particular resource may not be the best option for the firm.

The fourth hypothesis states that firms with former government officials in their boards have better financial results (ROA) than those firms without former government officials in their boards. This would be a reinforcement of resource dependence theory since it is a direct link between the resources board members bring to the firm and firm's financial performance. Unfortunately, table 18 and table 19 do not support this hypothesis for either year since there is not significant difference in results (ROA) among firms with former government officials and firms without former government officials in their boards, which again is contrary to resource dependence theory. This is very important information and contribution. Firms strive to survive and succeed, and gathering the necessary resources, former government officials, is intended to help them achieve their goals. If there is not such a link between former government officials in the board and better financial performance practitioners may choose the free rider approach, that is, let other firms get politically

involved and rip the benefits within the industry. Even though the free rider approach is normally used by smaller firms from a resource dependence point of view it would make sense for firms to chase other resources which might be more necessary to the firm. The free rider approach has a disadvantage though, that is, it is no longer a proactive approach but firms react to changes in the environment. Different management styles may prefer to be actively involved, using political strategies and hiring former government officials, or on the other extreme, the free rider option, and react to changes in the political environment.

The fifth hypothesis states that once involved in politically strategic management, firms will continue to do so. This makes sense from a resource dependence theory point of view. Former government officials are a rare and expensive resource, therefore, once the firm has invested time and money to obtain this resource it may want to continue to use it for a long period of time. The results, table 22, partially confirm this hypothesis. For scholars, it helps them understand how firms achieve their long term objectives whereas practitioners need to understand former government officials are a scarce resource and that nonmarket strategies imply a long term relationship between the board member and the firm.

Overall, the first group of hypotheses show us larger firms have more former government officials in their boards than smaller firms and most important, former government officials are not chosen because of their expertise and background, not chosen because the industry the firm is in is highly regulated, not chosen because they directly lead to better financial performance. Former government officials are chosen because of their links with the external environment. This links resource dependence theory and social theory.

The second group of hypotheses is related to outsiders in the board and the network they create. Outsiders, according to resource dependence theory, bring resources to the board. Hypotheses $6_a$, and $6_b$ are concerned with the effects of board size on the number of interlocks the firm has and firm's degree centrality. That is, larger boards have more interlocks than smaller boards and larger boards lead to higher degree centrality. It is implied here, $6_b$, that larger boards have more interlocks than smaller boards since degree centrality is based on the links to other firms. Board size is the control variable then. Table 23 shows us that for both years there is a direct and positive correlation between the number of interlocks (dependent variable) and board size (independent variable). It is important for both, scholars and practitioners, to understand that larger boards do not necessary mean more interlocks. There are firms, such as Corporación MAPFRE, S.A., one of the largest firms (IBEX 35) in the sample, which in 2004 had a large board, 18 members, but no interlocks. The average number of board members for 2004 is 9,657. The implications for scholars and practitioners are related to firm's strategies. Firms can have large boards but it does not necessary mean they have more interlocks. But when firms select new members to the board who already sit in other boards, interlocks, they are pursuing a specific strategy, increase their *contacts* with other firms. The reasons can be found in the main advantages interlocks have, that is, better access to better information and, when those links are with banks, better credit conditions.

Hypothesis $6_b$, the larger the board, the higher the firm's degree centrality, is also supported by the results. In both years, table 24, we find that Pearson's correlation coefficient is significantly different from zero, and in both cases, there is a positive association between the two variables. Interlocks are a resource firms have and use, and larger boards rip the benefits from this resource. Practitioners may consider the profile of the person to hire for the board and take into consideration other board appointments this person has. This is relevant for both, resource dependence theory and

human resource management. One of the benefits interlocks have is access to information. From a resource dependence point of view, increasing and improving those resources as well as their correct management is one of the functions boards have. At the same time, by hiring board members with other board appointments the firm is intentionally following a strategy which leads to a higher degree centrality within the network.

There is a direct relationship between board size an the number of interlocks and firms' degree centrality. Larger boards have more interlocks than smaller boards as well as larger boards leading to firms with a higher degree centrality. Hypothesis $6_c$ tries to identify if firm size is the relevant factor to board size, in other words, larger firms have larger boards. Once again, rooted in resource dependence theory which states that larger firms will be exposed to more uncertainties in the environment and therefore will need a wider range of resources, interlocks and degree centrality, in order to be able to survive and increase performance. Table 28 and table 32, after the ANOVA analysis, show us in both years there is a statistically significant difference in the mean between board size and firm size in the groups analysed, that is, larger firms have larger boards. This also appeals to agency theory since one of the functions boards have, besides providing resources, is to supervise management. It makes sense then than larger firms, with larger management units, require larger boards to supervise them. The results for this hypothesis are in line with similar analysis in other countries which implies that governance practices are becoming standardised across borders, that is, larger firms have larger boards. Resource dependence theory explains why larger firms need more resources and agency theory explains why larger boards are necessary to monitor larger management units in large firms. For practitioners these findings are relevant because they can them understand the need for a larger board in larger firms. Since boards have to monitor management, larger firms will have larger and more management units to be monitored, which in turn leads to

larger boards. It can also help understand the specific roles different board members have and the degree of specialisation, that is, some board members focus on providing resources whereas other board members focus on monitoring management.

Hypotheses $7_a$ and $7_b$ are related to board composition, in particular, outsiders are analysed, which are supposed to both, provide resources to the firm and better be able to supervise management. Hypothesis $7_a$ states that outsiders on corporate boards provide most of the interlocks the board has. This is a direct link to resource dependence. In this case, outsiders are perceived as a source of a rare and valuable resource, that is, interlocks. This function should not interfere with monitoring. According to agency theory, the board has the duty to monitor management on behalf of the owners. Table 33 provides the results which support this hypothesis. As in the case of the previous hypotheses, this is an example of resource dependence theory at work. Interlocks are valuable and necessary resources for the firm and firms prefer to use outsiders to obtain this resource. The explanation is simple and provides insights to both, scholars and practitioners: Insiders have managerial duties within the firm and therefore, due to time constraints, they might not be sit on other boards. This leads to specialisation, outsiders provide those links, interlocks, with other firms, whereas insiders monitor management.

Further analysis of the different types of outsiders, graph 13 and graph 14, shows that in both years the percentage of share capital outsiders, those who represent shareholders with ownership, are the highest. This is in line with the structure boards have in Spanish firms, where most boards members are appointed by shareholders, followed in both years by independent outsiders, those chosen by the board with no ownership ties. Shareholders control boards which in turn choose outsiders to provide a valuable resource, interlocks, to the firm. Outsiders are then co-opted into the firm. Again, the

implications for scholars and practitioners help us understand the profiles firms search for when they are selecting a new member to the board. Multiple appoints in different boards is then an asset. Since the regulator does not impose restrictions on the number of appointments a board member may have, it is the firm who has to balance multiple appointments with the busyness effect. Both, scholars and practitioners can benefit from this insights.

Hypothesis $7_b$ states that a higher percentage of outsiders in the board leads to higher financial results (ROA). Unfortunately, the hypothesis had to be rejected for both years. Table 34 as well as graph 15 and graph 16 show us there is no correlation between the percentage of outsiders and higher performance. As in the case of $H_4$, firms with former government officials in their boards have better financial results (ROA) than those firms without former government officials in their boards, this results are contrary to resource dependence theory. This is very important information and contribution. This means that the benefits of having a higher percentage of outsiders, for example, better access to information, do not lead directly to better financial results. For practitioners the implication is that the board needs to find a balance in the ratio insiders to outsiders, which might be different in each industry, sector, and for each firm. One of the necessary conditions to survive all firms need to fulfil is not to waste resources. If more outsiders in the board does not lead to better financial results, boards should consider using those resources somewhere else. Scholars may help to pinpoint those areas which may need further resources, leading to an overall improvement in firm performance.

Former government officials as well as other members of the board may be members of more than just one board. This is an interlock and they create a network which can be analysed in different ways. Networks change over time. As Brass et al. (2004) indicate, in order to understand network

change we need to focus on both, the individuals who create the network and the larger context networks are embedded in. The following hypotheses are related to the bricks that make up these networks, that is, firms and board members. These hypotheses are directly related to resource dependence theory since the creation of interlocks allows firms better access to resources as well as social theory, but also related to new institutionalism, since there is an imitation factor, as well as agency theory, where it can be argued that board members with several appointments are not effective enough in supervising management. $H_8$ states that network density increases over time. Table 35 shows the results which provide support for the hypothesis. Density, which is connectedness among organisations in the network, is 1,08% for 2004 and 1,19% for 2009. That is, only 1,08% and 1,19% of all possible ties are present. The Freeman centralisation measure used in UCINET gives us a percentage of the total possible value (100%). These are not dense networks. The small change in density in the time period provides support for the hypothesis. Resource dependence theory, obtaining external resources, as well as new institutionalism, imitation of practices, and social theory, links with the external environment, are present here. The implications for practitioners lie somehow in between the three of them. On one hand, if firms want better access to information they need to increase the number of interlocks the board has which leads to higher centrality of the firm in the network. At the same time, the network also changes, increasing its overall density. "...it is imperative that network researchers understand how whole networks operate, how they might best be structured and managed, and what outcomes might result" (Provan et al., 2007: 512). On the other hand, the strategy itself might not be access to better information but imitation. Firms imitate those practices perceived as successful which in turn leads to higher centrality of the firm and an overall increase in network density. Either way, networks are not stable entities. They change over time as their members pursue different strategies. Resources, such as information, are sought by firms and having board members sitting in other firms may grant them

access to such resources. Therefore firms may encourage their board members to seek other appointments or hire new board members who already have multiple appointments. At the same time, other firms imitate this strategy, increasing interlocks, since they perceive it as successful. One of the main advantages of decentralised networks is that more actors participate in the sharing of information, that is, when an actor is removed there are still other paths for information to flow to.

The ninth hypothesis, an imitating strategy (increasing interlocks) causes the number of isolated firms to decrease over time, is directly related to the previous one. If firms are using an strategy to increase their interlocks in the board and there is imitation by other firms then, the number of firms which do not have any interlocks at all, which are isolated, should decrease over time. Nevertheless, as table 36 shows, this is not the case. The percentage of isolated firms actually increased in the period and the hypothesis has to be rejected. Further analysis, using firm size as a control variable shows that in each year, the number of isolates increases as the capitalisation level of the firm decreases. That is, the smaller the firm, the more chances there are to become isolated. There is then a link between firm size and the tendency to be isolated. Larger firms are less isolated than smaller firms. Resources, interlocks or people who already have interlocks, are difficult to create and they require an investment that smaller firms may not be able to use. Practitioners can use this information to consider the need to create interlocks or not. Since interlocks require the deployment of considerable resources, firm size might be then a determinant factor, that is, larger firms have more diversified environments and at the same time have access to more resources which leads to increasing needs for, for example, information. Interlocks are how firms can have access to external information. When firms are grouped by sector, table 37 and table 38, we find that in both years the sector with the higher number of isolates is the real estate sector.

The results for the tenth hypothesis, banks have a central position in the network, have a number of ramifications. The hypothesis was rejected for both years, that is, banks are not the firms with the higher degree of centralisation nor are at the core of the network. This results are contrary to what Aguilera (1998) found. This can be explained due to two main factors. First, samples are not identical. Aguilera (1998) uses "... the 100 largest Spanish non-financial corporations ranked by sales, the 60 largest Spanish banks, and the 30 largest Spanish insurance companies ranked by assets in 1993" (Aguilera, 1998: 323), whereas the sample used here is of the largest firms in the Spanish stock exchange as listed by the CNMV in 2004 and 2009. Though similar, they are not the same. Second, it must be understood that Aguilera's study was in a period of transition in the Spanish economy, that is, Spain was moving away from publicly owned enterprises to private firms. The State was selling, privatising, its stakes. Therefore, a number of changes in the strategies followed by firms occurred which would lead to a change in the network. Nevertheless, it would make sense for banks to be the most central firms in the network since one of the most important advantages of interlocks is access to better credit conditions when banks have a board member in the target firm. Banks then, in a bank led economy, should be central, as Spain used to follow a Continental model. Nevertheless, as Musacchio (2004) explained in his study of interlocks in Brazil and Mexico, "companies with access to other financing options reduced their reliance on bank connections. This supports the idea that connections with bankers might be good in an environment where access to credit is limited or where close relations help to reduce asymmetries of information. But once financial markets develop, these connections to lenders are less necessary" (Musacchio, 2004: 29). On the other hand, Sicilia and Sallan (2007) study of the IBEX 35 in 2005 provides a similar result, that is, banks are no longer the most central firms in the network in that year. Once again, the samples are not identical but the results are comparable. Therefore, it can be said that the

network created by large Spanish firms has changed over time and that contrary to the Continental model, banks are no longer at its core. The implications for practitioners are clear, there has been a change in the strategies boards have in recent years. When moving away from a government controlled firm to a privatised firm boards have changed their strategies which in turn, among other things, has changed the network interlocks create. For scholars, since now firms have to submit compulsory reports about their corporate governance to the regulator, it has become easier to analyse and research board behaviour. Prior to 2004 firms were not required to provide this information. A final implication for both scholars and firms is that since banks are no longer at the core of the network this means either there are other financial options or firms have other communication channels with banks.

Table 41 and table 42 analyse the number of interlocks by sector. We can see that in 2004 even though banks have 12,55% of the interlocks there are 14 of them, which can help us understand why, individually, they do not have a central position in the network. As for 2009, banks no longer have the highest number of interlocks as a group, which show us the evolution in the network and how banking firms have moved away from the centre. Now, it is the construction sector the one with the highest number of interlocks with two firms in the top six as table 40 shows. Further analysis of table 39 and table 40 shows us that in 2004 there were five sectors with two firms: advertising, press, and RTV; banking; construction; oil, gas, and other sources; and telecommunications. Therefore, it cannot be said that in 2004 there was a dominant sector in the top 10% of firms with a higher normalised degree. As for 2009, the power balance shifted: there are four construction firms in the top 10% followed by three from the portfolio and holding sector. In both years, only a few firms maintain their high centrality. Out of the 18 firms in 2004 that were in the top 10% in centrality, eight were still among the top 10% in 2009. That is, 44% of them were

still among the most central firms after five years. In 2009, even though the real estate sector still has the highest number of firms, it no longer has the highest number of interlocks. This is now the construction sector, with only eight firms. Now, the banking sector, which ranks fourth according to the number of firms, is seventh in terms of the number of interlocks.

The hypotheses analysed in this dissertation are mainly rooted in resource dependence theory. Resources are limited and scarce. Firms try to obtain those resources which can help them to survive and improve performance. Even though the main focus in on resource dependence theory, other theories such as social capital, agency theory, and new institutionalism can help us better understand the processes at the top level of the firm, that is the board. I posit one theory cannot explain all the processes boards go through and it is necessary a holistic framework since theories have limitations and therefore, we need to use several theories to be able to have a deeper understanding of the internal processes in corporate governance in general and in board of directors in particular. The results show that firm size is a very relevant factor that affects different parts of the equation. Firm size is related to the number of former government officials firms have in their boards, it is not sector regulation as it is expected; size also positively affects the number of interlocks the firm has as well as its degree centrality and board size. Therefore, firm size leads to different strategies.

Former government officials are predicted by resource dependence theory to add a specific value not found in other walks of life. They are not hired because of their expertise in some specific areas. They are hired because of their links outside the firm and once involved in political activity firms will continue to do so over time. Is resource dependence theory relevant? Some of the hypotheses analyzed here are not supported by the results. Nevertheless, I believe resource dependence theory

is relevant. There must be a reason for firms to either hire more former government officials or increase their interlocks. Perhaps the answer is as simple as "if we don't do it we are going to lag behind". A more complete picture is necessary to fully understand board dynamics and their hiring processes.

Banks no longer at the core of the network created by interlocks. This is different to what Aguilera (1998) found. We must understand, nevertheless, that her study was made during a transition period in Spanish economy which led to an increasing number of privatizations. After this process has ended banks are now still relevant players in the network, but not the most central players. This network, which changes continuously, has a very low density, that is, there are not many links among the members of the network. This result is different from the one Cárdenas (2012) provides, the reason being the samples being different. Here the research has analysed the larger firms in the stock exchange, whereas he analyses the 50 largest firms. As we have seen before, larger firms, IBEX 35, show a different behaviour than smaller firms. Nevertheless, his study is relevant since it shows that the largest of the larger firms, have a different behaviour than the rest of the network. At the same time, overall network density has barely changed in the period which tells us the network is already at a different stage from the one analysed by Aguilera (1998).

I posit there is specialisation in the board. Some board members focus on their links outside the firm whereas other board members focus on monitoring management. These two activities lead to different types of board configurations based on firm's strategies. When firms need to increase monitoring they may not have as many interlocks as other firms in the industry. On the other hand, when the strategy is to increase and improve access to information, firms may choose board members with interlocks.

Finally, when trying to find a link between increased performance and some board characteristics, the number of former government officials or the percentage of outsiders, the results were in both cases negative. That is, nor a higher percentage of outsiders nor a higher number of former government officials in the board lead to better financial results. This final results are somehow counter intuitive to both resource dependence theory, social theory, agency theory, as well as new institutionalism.

# CHAPTER 6: LIMITATIONS AND FUTURE LINES OF STUDY

This dissertation is not without limitations and it also offers a number of future lines of study. The first limitation is that this dissertation is cross sectional, looking at board composition at two particular points in time. Further research is required to see whether such relationships exist over time. The larger firms in the Spanish stock exchange are analysed, therefore, all firms are, by definition, large in size. Large firms were chosen because they are leaders in their industry and leaders in the Spanish stock exchange. This bias, which was intentional, excludes medium-sized, small firms, as well as large firms which are not publicly traded. Similar studies, with a focus on small and medium-sized firms, as well as non traded large firms, should be carried out to provide a better understanding of their strategies and behaviours.

It is also important to point out that even though the firms in the sample are the largest in the Spanish Stock Exchange, there are major differences in size among them. When size among these firms is used as a control variable, the results prove that firms with different sizes display different behaviours. For example, the number of isolates increases as firm size decreases. Timeframe is also a limitation. Only five years have elapsed between observations. Unfortunately, the specific data about board members was not compulsory in Spain until 2004. Further analysis should be carried out in the future to assess the evolution of the hypotheses developed in this dissertation.

The free rider effect is not taken into consideration, that is, smaller firms in the sample may achieve the same level of performance without investing in political strategies. This opens the door for future research in this area. The size of the sample is another limitation. Only 181 firms in 2004 and

156 firms in 2009 are analysed. It might be interesting, from a scholar point of view, to expand the analysis including more firms. The analysis stops at the board level, that is, top management is not included. This intentional bias also offers the opportunity to further research in this area. This is a descriptive study. In order to have a better understanding of how firms select board members, in-depth analysis must take place through, for example, with interviews.

Hypothesis $1_a$ focuses on the educational background former government officials have and it does not take into account any further learning or experience, former government officials may have acquired through the years, for example, specific industry knowledge. This is a limitation and also an opportunity for future research since the relevant question is why are former government officials selected to participate in committees not related to their area of expertise? This question opens a number of possibilities for future studies. Is it because they have other expertise not included in their curriculums or is it part of their compensation package?

There has also been a shift in the most common committee for former government officials. In 2004 the executive committee accounted for 25,37% of all former government officials whereas in 2009 this percentage was reduced to 13,04%. On the other hand, the appointments and remuneration committee accounted in 2004 for 25,37% of all former government officials and for 39,13% in 2009. Further analysis is needed to understand these changes.

Future research may want to focus on why senate members are less involved with firms. Are their profiles different from the rest? Why is there such an important gender gap? Most former government officials are by far, males. Is it necessary to implement laws that force firms to have more diverse boards? Similar laws are already in place in other European countries such as Norway

or Italy. In 2011, the percentage of elected women for congress was 35,4% still a smaller percentage than in previous elections. But this does not reflect in the number of women who join boards. Further analysis into the reasons for this lack of diversity is necessary. Since the number of women involved in politics has continuously increased in recent years further research is necessary to understand why there are so few female former government officials selected as board members.

The fourth hypothesis, firms with former government officials in their boards have better financial results (ROA) than those firms without former government officials in their boards, does not take into consideration other factors such as economic climate, age of the firm, competition within the industry, etc. Further research in these areas may help understand the results. If firms with former government officials do not have better performance the questions is what do former government officials really bring to the board? Further analysis is needed in this area. Scholars need to further analyse the activities within the board to fully understand why former government officials are chosen. This dissertation paves the way for future research in, for example, human research management.

The fifth hypothesis, once involved in politically strategic management, firms will continue to do so, does not explain why firms become politically active. Some firms in the period analysed started to be politically active. Why? On the other hand, some firms no longer have former government officials in their boards. Further research is necessary to understand why they became politically active or why they have stopped being politically active. The analysis does not specify if it is the same former government officials in the same company over the period of time. Further research is needed in this area to understand the nature of the relationship between the firm and the board member. Is new institutionalism the explanation for the increasing number of former government

officials in boards? Is imitation involved in this process? When firms see that hiring a former government official provides insights in fields unknown to them, other firms, the imitators, will use the same strategy.

In Hungary, Stark and Vedres (2012), politicisation reached a saturation level at approximately 20% of companies. Is it the same case in Spain? Are larger firms no longer striving to co-opt the political environment? Likewise, do firms with former government officials share more bonds, have more business relationships with other firms with former government officials?

Hypothesis $6_b$, the larger the board, the higher is the firm's degree centrality, does not take into consideration other relevant factor which may influence boards when choosing another member. Future studies may want to analyse what other factors are relevant in human resource management when deciding on hiring a new board member? Is upper echelon theory, for example, relevant when choosing a new board member? Can the results from this dissertation be extrapolated to other countries? As for hypothesis $6_c$, firm's size affects board's size, even though in most cases larger firms have larger boards it is interesting to know in which cases this hypothesis is rejected, that is, in which sectors or industries we do not find this situation.

Hypothesis $7_a$ proposes outsiders on corporate boards provide most of the interlocks the board has. If outsiders provide the interlocks they may not have time to monitor management. Is management mostly monitored by insiders? Future research in this are is necessary to understand the the dynamics in the board. One of the main advantages of interlocks is they provide better credit conditions when firms have ties with banks as well as the spread of strategies, for example, poison pills. This dissertation did not analyse these phenomena and further research into these areas may

provide helpful and valuable insights into board's strategies. Furthermore, due to the specific outsider classification in Spain, it will be valuable to both, scholars and practitioners, to know which type of outsider, share-capital, independent, and "other outsiders", provides most interlocks. Likewise, if outsiders main role is to provide interlocks to the firm, further research into the busyness effect may be appropriate. Do busy outsiders fulfil their board duties?

A higher percentage of outsiders in the board does not lead to firm's higher financial results (ROA). As in the case of the fourth hypothesis, it does not take into consideration other factors such as economic climate, age of the firm, etc. Again, further research in these areas may help understand the results. Are there so many outsiders because firms want to or because they are force to comply with the regulator? Has the practice become institutionalised? The regulator provides overall guidelines but it does not specify a percentage of outsiders firms must have. We must them try to find other factors which are correlated with performance. For example, it might not be a higher percentage of outsiders but the quality of those outsiders.

Why do some firms decide to be isolated? The firms analysed here are all by definition large and still some of them do not have any interlocks. This implies firms have a specific strategy to remain isolated. Why are firms in the real estate sector so isolated? It is also important to know why some of the largest firms remain isolated, contrary to both resource dependence theory and agency theory. Further study is needed in this area.

Finally, banks no longer have a central position in the network. Why has the network changed? Was it social, political or economically motivated? Are construction companies used as a hub to exchange information? Further research in these ares is necessary.

Overall, this dissertation, despite its limitations, aimed to enrich the knowledge we have of the network created by large Spanish firms and open the door to further analysis and studies. This dissertation should help scholars and practitioners to better understand board dynamics, in particular, how boards, once they have decided a particular course of action, adapt their membership to include future members who will provide the necessary resources to achieve their goals. Despite its limitations, this work nevertheless advances theory by establishing links, or in this case lack of links, between network characteristics, outsiders and former government officials, and performance.

# BIBLIOGRAPHY


Acero Fraile, I. and N. Alcalde Fradejas (2010). "Heterogeneidad en los consejos de administración en España." *Tribuna de Economía* Mayo-Junio(854): 85-103.

Acquaah, M. (2007). "Managerial Social Capital, Strategic Orientation, and Organizational Performance in an Emerging Economy." *Strategic Management Journal* 28: 1235-1255.

Adams, R. B., B. E. Hermalin and M. S. Weisbach (2010). "The Role of Boards of Directors in Corporate Governance: A Conceptual Framework and Survey." *Journal of Economic Literature, American Economic Association* 48(1): 58-107.

Agrawal, S. and C. R. Knoeber (2001). "Do Some Outside Directors Play a Political Role?" *Journal of Law and Economics* 44(1): 179-198.

Aguilera, R. V. (1998). "Directorship Interlocks in Comparative Perspective: The Case of Spain." *European Sociological Review* 14 (4): 319-342.

Baker, W. E. (1990). "Market Networks and Corporate Behavior." *American Journal of Sociology* 6: 589-625.

Baron, D. P. (1995). "Integrated Strategy: Market and Nonmarket Components." *California Management Review* 37(2): 47–65.

Baron, D. P. (1995). "The nonmarket strategy system." *Sloan Management Review* 37(1): 73–86.

Baron, D. P. (1997). "Integrated Strategy, Trade Policy and Global Competition." *California Management Review* 39(2): 145–169.

Baron, D. P. (2001). "Theories of Strategic Nonmarket Participation: Majority-rule and Executive Institutions." *Journal of Economics and Management Strategy* 10(1): 47-89.

Barreto, I. and C. Baden-Fuller (2006). "To Conform or To Perform? Mimetic Behaviour, Legitimacy-Based Groups and Performance Consequences." *Journal of Management Studies* 43: 1559–1581.

Baum, J. A. C. and C. Oliver (1991). "Institutional linkages and organizational mortality." *Administrative Science Quarterly* 36: 187-218.

Baysinger, B. (1984). "Domain Maintenance as an Objective of Business Political Activity: An Expanded Typology." *Academy of Management Review* 9: 248–258.

Baysinger, B. and R. E. Hoskisson (1990). "The composition of boards of directors and strategic control: Effects on corporate strategy." *Academy of Management Review* 15: 72–87.

Bazerman, M. H. and D. F. Schoorman (1983). "A limited rationality model of interlocking directorates." *Academy of Management Review* 8: 206–217.

Blau, G., B. Mehta, S. Bose, J. Pekny, G. Sinclair, K. Keunker and P. Bunch (2000). "Risk management in the development of new products in highly regulated industries." *Computers & Chemical Engineering* 24(2): 659-664.

Bonardi, J. P., A. J. Hillman and G. D. Keim (2005). "The Attractiveness of Political Markets: Implications for Firm Strategy." *Academy of Management Review* 54: 397-413.

Bonardi, J. P., G. L. F. Holburn and R. G. Vanden Bergh (2006). "Nonmarket Strategy Performance: Evidence from U.S. Electric Utilities." *Academy of Management Journal* 49(6): 1209-1228.

Boone, A. L., L. Casares Field, J. M. Karpoff and C. G. Raheja (2007). "The determinants of corporate board size and composition: An empirical analysis." *Journal of Financial Economics* 85(1): 66-101.

Bourdieu, P. (1989). "Social Space and Symbolic Power." *Sociological Theory* 7(1): 14-25.

Brass, D. J., J. Galaskiewicz, H. R. Greve and W. Tsai (2004). "Taking Stock of Networks and Organizations: a Multilevel Perspective." *Academy of Management Journal* 47(6): 795-817.

Burt, R. S. Structural Holes, The Social Structure of Competition, Cambridge, MA: Harvard University Press. 1992.

Cárdenas, J. (2012). "La organización en red del poder corporativo. Una tipología de redes corporativas." *Revista Internacional de Sociología* 70(1): 77-105.

Caroline, H. (1996). "Social network analysis: An approach and technique for the study of information exchange." *Library & Information Science Research* 18(4): 323-342.

Carpenter, M. A. and J. D. Westphal (2001). "The strategic context of external network ties: Examining the impact of director appointments on board involvement in strategic decision making." *Academy of Management Journal* 44: 639–660.

Certo, S. T., C. Daily and D. Dalton (2001). "Signaling Firm Value Through Board Structure: An Investigation of Initial Public Offerings." *Entrepreneurship Theory and Practice* 26(2): 33-50.

Chen, R., M. Dyball and S. Wright (2009). "The Link Between Board Composition and Corporate Diversification in Australian Corporations." *Corporate Governance: An International Review* 17: 208–223.

Chizema, A. and J. Kim (2010). "Outside Directors on Korean Boards: Governance and Institutions." *Journal of Management Studies* 47(1): 109-129.

Chizema, A. and Y. Shinozawa (2012). "The 'Company with Committees': Change or Continuity in Japanese Corporate Governance?" *Journal of Management Studies* 49(1): 77-101.

Christensen, S. L. (1997). "The New Federalism: Implications for the Legitimacy of Corporate Political Activity." *Business Ethics Quarterly* 7(3): 81-91

Clougherty, J. A. (2003). "Nonmarket strategy for merger reviews." *Business and Society* 42: 115-143.

Cohen, L., A. Frazzini and C. Malloy (2008). "The Small World of Investing: Board Connections and Mutual Fund Returns." *The Journal of Political Economy* 116(5): 951.

Coles, J. L., N. D. Daniel and L. Naveen (2008). "Boards: Does one size fit all." *Journal of Financial Economics* 87(2): 329-356.

Combs, J. G., D. J. Ketchen, A. A. Perryman and M. S. Donahue (2007). "The Moderating Effect of CEO Power on the Board Composition–Firm Performance Relationship." *Journal of Management Studies* 44(8): 1299-1323.

Cook, R. and D. Barry (1995). "Shaping the External Environment: A Study of Small Firms' Attempts to Influence Public Policy." *Business and Society* 34(3): 317–344.

Crespí, R. and B. Pascual-Fuster (2011). "Executive Director's pay and Networks: The Influence of Ownership Structure." from http://ssrn.com/abstract=1287100.

Cronin, B. and V. Popov (2005). "Director networks and U.K. corporate performance." *International Journal of Knowledge, Culture and Change Management* 4: 1195-1205.

Cross, R. and J. N. Cummings (2004). "Tie and Network Correlates of Individual Performance in Knowledge-intensive Work." *Academy of Management Journal* 47(6): 928-937.

Dacin, T., C. Oliver and J. P. Roy (2007). "The Legitimacy of Strategic Alliances: an Institutional Perspective." *Strategic Management Journal* 28: 169-187.

Daily, C. and C. Schwenk (1996). "Chief Executive Officers, Top Management Teams, and Boards of Directors: Congruent or Countervailing Forces?" *Journal of Management* 22: 185-202.

Daily, C. M., D. R. Dalton and A. A. Cannella (2003). "Corporate Governance: Decades of Dialogue and Data." *The Academy of Management Review* 28(3): 371-382.

Dalton, D. R., C. M. Daily, A. E. Ellstrand and J. L. Johnson (1998). "Meta-analytic reviews of board composition, leadership structure, and financial performance." *Strategic Management Journal (1986-1998)* 19(3): 269-269.

Dalziel, T., R. J. Gentry and M. Bowerman (2011). "An Integrated Agency–Resource Dependence View of the Influence of Directors' Human and Relational Capital on Firms' R&D Spending." *Journal of Management Studies* 48(6): 1217-1242.

Davis, G. F. (1991). "Agents without Principles? The Spread of the Poison Pill through the Intercorporate Network." *Administrative Science Quarterly* 36: 583–613.

DiMaggio, P. J. and W. W. Powell (1983). "The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields." *American Sociological Review* 48: 147-160.

Dowell, G., A. Swaminathan and J. Wade (2002). Pretty pictures and ugly scenes: Political and technological maneuvers in high definition television. The New Institutionalism in Strategic Management. P. Ingram and B. S. Silverman. 19**:** 97-133.

Drago, C., S. Manestra and P. Santella (2011). "Interlocking Directorships and Cross-Shareholdings Among Italian Blue Chips." *European Business Organization Law Review (EBOR)* 12(04): 619-652.

Edwards, F. (1977). "Managerial Objective in Regulated Industries: Expense-Preference Behavior in Banking." *Journal of Political Economy* 85(1): 147-161.

Eisenhardt, K. (1989). "Agency theory: An assessment and review." *Academy of Management Review* 14: 57-74.

Eisenhardt, K. M. (1989). "Agency Theory: An Assessment and Review." *The Academy of Management Review* 14(1): 57-74.

Fama, E. F. and M. C. Jensen (1983). "Separation of Ownership and Control." *Journal of Law and Economics* 26(2): 301-325.

Ferris, S. P., M. Jagannathan and A. C. Pritchard (2003). "Too Busy to Mind the Business? Monitoring by Directors with Multiple Board Appointments." *The Journal of Finance* 58(3): 1087-1111.

Fich, E. M. and A. Shivdasani (2006). "Are Busy Boards Effective Monitors?" *The Journal of Finance* 61: 689-724.

Figueiredo, J. M. and E. H. Tiller (2001). "The structure and conduct of lobbying: An empirical analysis of corporate lobbying at the Federal Communications Commission." *Journal of Economics and Management Strategy* 10: 91–122.

Filatotchev, I. and K. Bishop (2002). "Board composition, share ownership, and 'underpricing' of U.K. IPO firms." *Strategic Management Journal* 23: 941–955.

Filatotchev, I. and S. Toms (2003). "Corporate Governance, Strategy and Survival in a Declining Industry: A Study of UK Cotton Textile Companies*." *Journal of Management Studies* 40(4): 895-920.

Finkelstein, S. and B. K. Boyd (1998). "How much does the CEO matter? The role of managerial discretion in the setting of CEO compensation." *Academy of Management Journal* 41(2): 179-199.

Finkelstein, S. and A. C. Mooney (2003). "Not the usual suspects: How to use board process to make boards better." *Academy of Management Executive* 17(2): 101-113.

Fracassi, C. and G. Tate (2012). "External Networking and Internal Firm Governance." *The Journal of Finance* 67(1): 153.

Freeman, L. C. (1978). "Centrality in Social Networks Conceptual Clarification." *Social Networks* 1(3): 215-239.

Getz, K. (1993). Selecting corporate political tactics. Corporate Political Agency. B. Mitnick, Sage, Newbury Park, CA**:** 242–273.

Goodstein, J. and W. Boeker (1991). "Turbulence at the top: A new perspective on governance structure changes and strategic change." *Academy of Management Journal* 34: 306–330.

Granovetter, M. (1985). "Economic Action and Social Structure: The Problem of Embeddedness." *American Journal of Sociology* 91: 481-510.

Grant, R. M. (1991). "The Resource-Based Theory of Competitive Advantage: Implications for Strategy Formulation." *California Management Review* 33(3): 114-135.

Gulati, R., N. Nohria and A. Zaheer (2000). "Strategic Networks." *Strategic Management Journal* 21(Special Issue): 203–215.

Hambrick, D. C. and R. D'Aveni (1992). "Top Team Deterioration As Part of the Downward Spiral of Large Corporate Bankruptcies." *Management Science* 38: 1445-1466.

Hambrick, D. C. and P. A. Mason (1984). "Upper Echelons: The Organization as a Reflection of Its Top Managers." *Academy of Management Review* 9(2): 193-206.

Haniffa, R. M. and T. E. Cooke (2005). "The impact of culture and governance on corporate social reporting." *Journal of Accounting and Public Policy* 24(5): 391-430.

Hannan, M. T. and J. H. Freeman (1984). "Structural inertia and organizational change." *American Sociological Review* 49: 149-164.

Harris, I. C. and K. Shimizu (2004). "Too Busy To Serve? An Examination of the Influence of Overboarded Directors." *Journal of Management Studies* 41(5): 775-798.

Haunschild, P. R. (1993). "Interorganizational Imitation: The Impact of Interlocks on Corporate Acquisition Activity." *Administrative Science Quarterly* 38(4): 564-592.

Haunschild, P. R. and C. Beckman (1998). "When do interlocks matter? Alternate sources of information and interlock influence." *Administrative Science Quarterly* 43: 815–844.

Haunschild, P. R. and A. S. Miner (1997). "Modes of interorganizational imitation: The effects of outcome salience and uncertainty." *Administrative Science Quarterly* 42: 472-500.

Haynes, K. T. and A. Hillman (2010). "The Effect of Board Capital and CEO Power on Strategic Change." *Strategic Management Journal* 31(11): 1145-1163.

Heracleous, L. and J. Murray (2001). "Networks, Interlocking Directors and Strategy: Toward a Theoretical Framework." *Asia Pacific Journal of Management* 18(2): 137.

Hillman, A., G. Keim and R. Luce (2001). "Board composition and stakeholder performance: Do stakeholder directors make a difference?" *Business and Society* 40: 295-314.

Hillman, A., A. Zardkoohi and L. Bierman (1999). "Corporate Political Strategies and Firm Performance: Indications of Firm-specific Benefits from Personal Service in the U.S. Government." *Strategic Management Journal* 20: 67-81.

Hillman, A. J. (2005). "Politicians on the Board of Directors: Do Connections Affect the Bottom Line?" *Journal of Management* 31 (3): 464-481.

Hillman, A. J., A. A. Cannella and R. L. Paetzold (2000). "The Resource Dependence Role of Corporate Directors: Strategic Adaptation of Board Composition in Response to Environmental Change." *Journal of Management Studies* 37: 235–255.

Hillman, A. J. and T. Dalziel (2003). "Boards of Directors and Firm Performance: Integrating Agency and Resource Dependence Perspective." *Academy of Management Review* 28: 383–396.

Hillman, A. J. and M. A. Hitt (1999). "Corporate Political Strategy Formulation: A Model of Approach, Participation, and Strategy Decisions." *Academy of Management Review* 24(4): 825-842.

Hillman, A. J., G. D. Keim and D. Schuler (2004). "Corporate Political Activity: A Review and Research Agenda." *Journal of Management* 22: 837-857.

Hillman, A. J., M. C. Withers and B. J. Collins (2009). "Resource Dependence Theory: A Review." *Journal of Management* 35(6): 1404-1427.

Hitt, M. A. and R. Duane (2002). "The Essence of Strategic Leadership: Managing Human and Social Capital." *Journal of Leadership & Organizational Studies* 9(1): 3-14.

Hoppe, B. and C. Reinelt (2010). "Social network analysis and the evaluation of leadership networks." *The Leadership Quarterly* 21 (4): 600-619.

Ingram, P. and K. Clay (2000). "The Choice within Constraints: New Institutionalism and Implications for Sociology." *Annual Review of Sociology* 26: 525-546.

Inkpen, A. C. and E. W. K. Tsang (2005). "Social Capital Networks and Knowledge Transfer." *Academy of Management Review* 30 (1): 146-165.

Jensen, M. C. (1993). "The Modern Industrial Revolution, Exit, and the Failure of Internal Control Systems." *The Journal of Finance* 48(3): 831-880.

Jensen, M. C. and W. H. Meckling (1976). "Theory of the firm: Managerial behavior, agency costs, and ownership structure." *Journal of Financial Economics* 3: 305–360.

Johnson, J. L., C. M. Daily and A. E. Ellstrand (1996). "Boards of Directors: A Review and Research Agenda." *Journal of Management* 22 (3): 409-438.

Kang, E. (2008). "Director Interlocks and Spillover Effects of Reputation Penalties from Financial Reporting Fraud." *Academy of Management Journal* 51(3): 537-555.

Keim, G. D. and A. J. Hillman (2008). "Political environments and business strategy: Implications for managers." *Business Horizons* 51(1): 47-53.

Kiel, G. C. and G. J. Nicholson (2003). "Board Composition and Corporate Performance: how the Australian experience informs contrasting theories of corporate governance." *Corporate Governance: An International Review* 11(3): 189-205.

Kilduff, M., W. Tsai and R. Hanke (2006). "A Paradigm too far? A Dynamic Stability Reconsideration of the Social Network Research Program." *Academy of Management Review* 31(4): 1031-1048.

Kim, Y. and A. A. Cannella (2008). "Toward a Social Capital Theory of Director Selection." *Corporate Governance: An International Review* 16(4): 282-293.

Koka, B. R., R. Madhavan and J. E. Prescott (2006). "The Evolution of Interfirm Networks: Environmental Effects on Patterns of Network Change." *The Academy of Management Review* 31(3): 721-737.

Kor, Y. Y. (2006). "Direct and Interaction Effects of Top Management Team and Board Compositions on R&D Investment Strategy." *Strategic Management Journal* 27(11): 1081-1099.

Kor, Y. Y. and V. F. Misangyi (2008). "Outside directors' industry-specific experience and firms' liability of newness." *Strategic Management Journal* 29: 1345-1355.

Kor, Y. Y. and C. Sundaramurthy (2009). "Experience-Based Human Capital and Social Capital of Outside Directors." *Journal of Management* 35(4): 981-1006.

Kostova, T. and K. Roth (2003). "Social Capital in Multinational Corporations and Micro-macro Model of its Formation." *Academy of Management Review* 28(2): 297-317.

Labianca, G. and D. J. Brass (2006). "Exploring the Social Ledger: Negative Relationships and Negative Asymmetry in Social Networks in Organizations." *Academy of Management Review* 31(3): 596-614.

Lavie, D. (2006). "The Competitive Advantage of Interconnected Firms: an Extension of the Resource-based View." *Academy of Management Review* 31(3): 635-658.

Lenway, S. A. and K. Rehbein (1991). "Leaders, Followers, and Free Riders: An Empirical Test of Variation in Corporate Political Involvement." *The Academy of Management Journal* 34(4): 893-905.

Lester, R. H., A. Hillman, A. Zardkoohi and A. A. J. Cannela (2008). "Former Government Officials as outside Directors: The Role of Human and Social Capital." *Academy of Management Journal* 51(5): 999-1013.

Lieberman, M. B. and S. Asaba (2006). "Why do Firms Imitate Each Other?" *Academy of Management Review* 31(2): 366-395.

Lorsch, J. L. and E. M. MacIver Pawns or potentates? The reality of America's corporate boards, Boston: Harvard Business School Press. 1989.

Mariolis, P. (1975). "Interlocking Directorates and Control of Corporations: the Theory of Bank Control." *Social Science Quarterly* 56(3): 425-439.

McWilliams, A., D. D. Van Fleet and K. D. Cory (2002). "Raising rivals costs through political strategy: an extension of the resource-based theory." *Journal of Management Studies* 39(5): 707-723.

Meznar, M. and D. Nigh (1995). "Buffer or Bridge? Environmental and Organizational Determinants of Public Affairs Activities in American Firms." *Academy of Management Journal* 38(4): 975–996.

Miller, M. (2006). "Make 150,000% Today! Looking for a great return on investment?" *Fortune* 153.

Mintzberg, H. (1983). "Who controls whom? An examination between management and boards of directors in large American corporations." *Academy of Management Review* 8: 426-435.

Mizruchi, M. S. (1996). "What do Interlocks do? An Analysis Critique and Assessment of Research on Interlocking Directorates." *Annual Review of Sociology* 22: 271-298.

Mizruchi, M. S. and L. B. Stearns (1988). "A longitudinal study of the formation of interlocking directorates." *Administrative Science Quarterly* 33: 194-210.

Mizruchi, M. S. and L. B. Stearns (1994). "A Longitudinal Study of Borrowing by Large American Corporations." *Administrative Science Quarterly* 39: 118-140.

Musacchio, A. (2004). Did Well Connected Directors Add Value? Network Centrality and Investor Valuation in Brazil and Mexico, 1905-1909, Segundo Congreso de la Asociacion Mexicana de Historia Economica, UNAM, Mexico City October 27-29.

Musacchio, A. and I. Read (2007). "Bankers, Industrialists, and their Cliques: Elite Networks in Mexico and Brazil during Early Industrialization." *Enterprise and Society* 8(4): 842-880.

Nahapiet, J. and S. Ghoshal (1998). "Social capital, intellectual capital, and the organizational advantage." *Academy of Management Review* 23: 242-266.

Oh, H., G. Labianca and M.-H. Chung (2006). "A Multilevel Model of Group Social Capital." *Academy of Management Review* 31 (3): 569-582.

Okhmatovskiy, I. (2010). "Performance Implications of Ties to the Government and SOEs: A Political Embeddedness Perspective." *Journal of Management Studies* 47(6): 1020-1047.

Oliver, C. (1991). "Strategic Responses to Institutional Processes." *Academy of Management Review* 16(1): 145-179.

Oliver, C. and I. Holzinger (2008). "The Effectiveness of Strategic Political Management: a Dynamic Capabilities Framework." *Academy of Management Review* 33(2): 496-520.

Pearce, J. A. and S. A. Zahra (1992). "Board Composition from a Strategic Contingency Perspective." *Journal of Management Studies* 29(4): 411-438.

Peng, M. W. and Y. Luo (2000). "Managerial ties and firm performance in a transition economy: The nature of a micro-macro link." *Academy of Management Journal* 43(3): 486-501.

Pennings, J., K. Lee and A. van Wittelloostuijn (1998). "Human capital, social capital, and firm dissolution." *Academy of Management Journal* 41: 425–440.

Pfeffer, J. (1972). "Size and Composition of Corporate Boards of Directors: The Organization and its Environment." *Administrative Science Quarterly* 17: 218–229.

Pfeffer, J. and G. Salancik The External Control of Organizations: A Resource Dependence Perspective. New York, Harper & Row. 1978.

Portes, A. (1998). "Social Capital: Its Origins and Applications in Modern Sociology." *Annual Review of Sociology* 24: 1–24.

Provan, K. G., A. Fish and J. Sydow (2007). "Interorganizational Networks at the Network Level: A Review of the Empirical Literature on Whole Networks." *Journal of Management* 33(3): 479-516.

Ravasi, D. and A. Zattoni (2006). "Exploring the Political Side of Board Involvement in Strategy: A Study of Mixed-Ownership Institutions." *Journal of Management Studies* 43(8): 1671-1702.

Rhoades, D. L., P. L. Rechner and C. Sundaramurthy (2000). "Board Composition And Financial Performance: A Meta-Analysis Of The Influence Of Outside Directors." *Journal of Managerial Issues* 12(1): 76.

Rodriguez, P., K. Uhlenbruck and L. Eden (2005). "Government corruption and the entry strategies of multinationals." *Academy of Management Review* 30(2): 383-396.

Ruigrok, W., S. I. Peck and H. Keller (2006). "Board Characteristics and Involvement in Strategic Decision Making: Evidence from Swiss Companies." *Journal of Management Studies* 43(5): 1201-1226.

Schuler, D. (1996). "Corporate Political Strategy and Foreign Competition: The Case of the Steel Industry." *Academy of Management Journal* 39(3): 720–737.

Schuler, D. (1999). "Corporate Political Action: Rethinking the Economic and Organizational Influences." *Business and Politics* 1(1): 83–97.

Schuler, D., K. Rehbein and R. Cramer (2002). "Pursuing Strategic Advantage through Political Means: A Multivariate Approach." *Academy of Management Journal* 45: 659–672.

Shaffer, B., T. J. Quasney and C. M. Grimm (2000). "Firm level performance implications of nonmarket actions." *Business and Society* 39(2): 126.

Shropshire, C. (2010). "The Role of Interlocking Director and Board Receptivity in the Diffusion of Practices." *Academy of Management Review* 35(2): 246-264.

Sicilia, C. and J. M. Sallan (2007). Las relaciones entre las empresas cotizadas españolas: un análisis a través de las consejerías cruzadas. XI Congreso de Ingeniería de Organización. Madrid.

Singh, J., R. House and D. Tucker (1986). "Organizational change and organizational mortality." *Administrative Science Quarterly* 32: 587-611.

Stark, D. and B. Vedres (2012). "Political Holes in the Economy: The Business Network of Partisan Firms in Hungary." *American Sociological Review* 77(5): 700-722.

Stening, B. W. and Wan Tai Wai (1984). "Interlocking Directorates Among Australia's Largest 250 Corporations 1959-1979." *Journal of Sociology* 20(1): 47-55.

Stenvenson, W. B. and M. Gilly (1991). "Information Processing and Problem Solving: The Migration of Problems through Formal Positions and Networks of Ties." *Academy of Management Journal* 34: 918–928.

Stenvenson, W. B. and R. F. Radin (2009). "Social Capital and Social Influence on the Board of Directors." *Journal of Management Studies* 46(1): 16-44.

Stiles, P. (2001). "The Impact of the Board on Strategy: An Empirical Examination." *Journal of Management Studies* 38(5): 627-650.

Subrahmanyam, A. (2008). "Social Networks and Corporate Governance." *European Financial Management* 14(4): 633.

Suchman, M. C. (1995). "Managing legitimacy: strategic and institutional approaches." *Academy of Management Review* 20: 571-610.

Tichy, N., M. Tushman and C. Fombrum (1979). "Social network analysis for organizations." *Academy of Management Review* 4: 507–520.

Uzzi, B. (1999). "Embeddedness in the Making of Financial Capital: How Social Relations and Networks Benefit Firms Seeking Financing." *American Sociological Review* 64: 481-505.

Uzzi, B. and S. Dunlap (2005). How to Build your Network, Harvard Business Review. December**:** 53-60.

Valenti, A. and S. V. Horner (2010). "Corporate Directors' Social Capital: How Centrality and Density Impact Board Monitoring." *The Journal of Applied Business and Economics* 11(4): 117-127.

Venkatraman, N. and L. Chi-Hyon (2004). "Preferential Linkage and Network Evolution: A Conceptual Model and Empirical Test in the U.S. Video Game Sector." *Academy of Management Journal* 47(6): 876-892.

Westphal, J. D. (1999). "Collaboration in the Boardroom: Behavioral and Performance Consequences of CEO-Board Social Ties." *Academy of Management Journal* 42: 7–24.

Williamson, I. O. and D. M. Cable (2003). "Organizational Hiring Patterns, Interfirm Network Ties, and Interorganizational Imitation." *Academy of Management Journal* 43(3): 349-358.

Williamson, O. E. (1984). Corporate governance. Yale Law Journal. 3**:** 1197-1229.

Windolf, P. and J. R. Beyer (1996). "Co-operative Capitalism: Corporate Networks in Germany and Britain." *The British Journal of Sociology* 47(2): 205-231.

Wiseman, R. M., G. Cuevas-Rodr√≠guez and L. R. Gomez-Mejia (2012). "Towards a Social Theory of Agency." *Journal of Management Studies* 49(1): 202-222.

Yeo, H.-J., C. Pochet and A. Alcouffe (2003). "CEO Reciprocal Interlocks in French Corporations." *Journal of Management & Governance* 7(1): 87-108.

Yoffie, D. B. and M. Kwak (2001). "Playing by the rules. How Intel avoids antitrust litigation." *Harvard Business Review* 79(6): 119-122.

Yoffie, D. R. (1987). Corporate Strategies for Political Action. Business Strategy and Public Policy: Perspectives from Industry and Academia. A. A. Marcus, A. M. Kaufman and D. R. Beam. New York, Quorum**:** 43-60.

Ziegler, R., D. Bender and H. Biehler (1985). Industry and banking in the German corporate network. Networks of corporate power. F. N. Stokman, R. Ziegler and J. Scott. Cambridge, Polity.

Zucker, L. G. (1987). "Institutional Theories of Organization." *Annual Review of Sociology* 13: 443-464.

# APPENDICES

# Appendix I: List of firms for 2004

| FIRM NAME |
|---|
| ABERTIS INFRAESTRUCTURAS, S.A. |
| ACCIONA, S.A. |
| ACERINOX, S.A. |
| ACS, ACTIVIDADES DE CONSTRUCCIÓN Y SERVICIOS S.A. |
| ALTADIS, S.A. |
| AMADEUS GLOBAL TRAVEL DISTRIBUTION, S.A. |
| BANCO BILBAO VIZCAYA ARGENTARIA, S.A. |
| BANCO DE SABADELL, S.A. |
| BANCO ESPAÑOL DE CREDITO, S.A. |
| BANCO POPULAR ESPAÑOL, S.A. |
| BANCO SANTANDER CENTRAL HISPANO, S.A. |
| BANKINTER, S.A. |
| CORPORACIÓN MAPFRE, S.A. |
| ENAGÁS, S.A. |
| ENDESA, S.A. |
| FOMENTO DE CONSTRUCCIONES Y CONTRATAS, S.A. |
| GAS NATURAL SDG, S.A. |
| GESTEVISIÓN TELECINCO, S.A. |
| IBERDROLA, S.A. |
| IBERIA LÍNEAS AÉREAS DE ESPAÑA, S.A. |
| INDRA SISTEMAS, S.A. |
| METROVACESA, S.A. |
| PROMOTORA DE INFORMACIONES, S.A. |
| SACYR VALLEHERMOSO, S.A. |
| TELEFÓNICA, S.A. |
| UNION FENOSA, S.A. |
| ANTENA 3 DE TELEVISION, S.A. |
| BANCO DE ANDALUCIA, S.A. |
| BANCO PASTOR, S.A. |

**Appendix I: List of firms for 2004**

| FIRM NAME |
|---|
| CEMENTOS PORTLAND VALDERRIVAS, S.A. |
| CINTRA CONCESIONES DE INFRAESTRUCTURAS DE TRANSPORTE, S.A. |
| COMPAÑIA DE DISTRIBUCION INTEGRAL LOGISTA, S.A |
| COMPAÑIA ESPAÑOLA DE PETROLEOS, S.A. |
| EBRO FOODS, S.A. |
| FADESA INMOBILIARIA, S.A. |
| GRUPO CATALANA OCCIDENTE, S.A. |
| INMOBILIARIA COLONIAL, S.A. |
| INMOBILIARIA URBIS, S.A. |
| SOCIEDAD ANONIMA DAMM |
| SOCIEDAD GENERAL DE AGUAS DE BARCELONA, S.A. |
| SOL MELIA S.A. |
| TERRA NETWORKS, S.A. |
| TESTA INMUEBLES EN RENTA, S.A. |
| ZARDOYA OTIS, S.A. |
| ZELTIA, S.A. |
| ABENGOA, S.A. |
| ALDEASA, S.A. |
| BANCO DE CASTILLA, S.A. |
| BANCO DE GALICIA, S.A. |
| BANCO GUIPUZCOANO, S.A. |
| CAMPOFRIO FOOD GROUP, S.A. |
| CORTEFIEL, S.A. |
| FAES FARMA, S.A. |
| GRUPO EMPRESARIAL ENCE, S.A. |
| JAZZTEL, PLC. |
| OBRASCON HUARTE LAIN, S.A. |
| PROMOCIONES Y CONCIERTOS INMOBILIARIOS, S.A. |
| PROSEGUR, COMPAÑIA DE SEGURIDAD, S.A. |
| SOS CUÉTARA, S.A. |
| URALITA, S.A. |

**Appendix I: List of firms for 2004**

| FIRM NAME |
|---|
| BANCO DE CREDITO BALEAR, S.A. |
| BANCO DE VASCONIA, S.A. |
| BARON DE LEY, S.A. |
| BEFESA MEDIO AMBIENTE, S.A. |
| CEMENTOS LEMONA, S.A. |
| CEMENTOS MOLINS, S.A. |
| CIE AUTOMOTIVE, S.A. |
| ELECNOR, S.A. |
| GRUPO INMOCARAL,S.A. |
| INMOBILIARIA DEL SUR, S.A. |
| LIBERTAS 7, S.A. |
| SOTOGRANDE, S.A. |
| TELE PIZZA, S.A. |
| TRANSPORTES AZKAR, S.A. |
| TUBACEX, S.A. |
| VIDRALA, S.A. |
| VISCOFAN, S.A. |
| ADOLFO DOMINGUEZ, S.A. |
| AGRUPACIO ACTIVIDADES E INVERSIONES INMOBILIARIAS, S.A. |
| AGUAS DE VALENCIA, S.A. |
| AHORRO FAMILIAR, S.A. |
| AMPER, S.A. |
| AVANZIT, S.A. |
| AYCO GRUPO INMOBILIARIO, S.A. |
| AZKOYEN, S.A. |
| BANCO DE PROMOCION DE NEGOCIOS, S.A. (PROMOBANC) |
| BARCELONESA DE INVERSIONES MOBILIARIAS, S.A. |
| BODEGAS BILBAINAS, S.A. |
| BODEGAS RIOJANAS, S.A. |
| BYADA, S.A. |
| CALPE INVEST, S.A. |

**Appendix I: List of firms for 2004**

| FIRM NAME |
|---|
| CARROGGIO, S.A. DE EDICIONES |
| CARTERA HOTELERA, S.A. |
| CIRCULO DE VALORES MOBILIARIOS, S.A. |
| COMPANYIA D´AIGÜES DE SABADELL, S.A. |
| COMPAÑIA DE INVERSIONES CINSA, S.A. |
| COMPAÑIA DE INVERSIONES MOBILIARIAS BARCINO, S.A |
| COMPAÑIA ESPAÑOLA DE VIVIENDAS EN ALQUILER, S.A. |
| COMPAÑIA ESPAÑOLA PARA LA FABRICACION MECANICA DEL VIDRIO, S.A. |
| COMPAÑÍA LEVANTINA DE EDIFICACIÓN Y OBRAS PÚBLICAS, S.A. |
| COMPAÑIA LOGISTICA DE HIDROCARBUROS CLH, S.A. |
| DESARROLLO MOBILIARIO, S.A. |
| DINAMIA CAPITAL PRIVADO, S.A., SCR |
| DOGI INTERNATIONAL FABRICS, S.A. |
| DURO FELGUERA, S.A. |
| ERCROS, S.A. |
| ESPAÑOLA DEL ZINC, S.A. |
| FEDERICO PATERNINA, S.A. |
| FERSA ENERGIAS RENOVABLES, S.A. |
| FINANZAS E INVERSIONES VALENCIANAS, S.A. |
| FOMENTO BALEAR DE INVERSIONES, S.A. |
| FORUM INMOBILIARIO CISNEROS, S.A. |
| FUNESPAÑA, S.A. |
| GAESCO HOLDING, S.A. |
| HISPANA HOLDING, S.A. |
| HULLAS DEL COTO CORTES, S.A. |
| IBERPAPEL GESTION, S.A. |
| INBESOS S.A. |
| INDO INTERNACIONAL, S.A. |
| INDUSTRIAS DEL ACETATO DE CELULOSA, S.A. |
| INDUSTRIAS DEL CURTIDO, S.A. |
| INMO DEALER, S.A. |

**Appendix I: List of firms for 2004**

| FIRM NAME |
|---|
| INMOBILIARIA CARROGGIO, S.A. |
| INMOCAHISPA, S.A. |
| INMOFIBAN, S.A. |
| INMUEBLES DE CAJA HIPOTECARIA CATALANA MUTUAL, S.A. |
| INVERFIATC, S.A. |
| INVERPYME SCR, S.A. |
| INVERSIONES AZALBA, S.A. |
| INYPSA INFORMES Y PROYECTOS, S.A. |
| JOAQUIM ALBERTI, S.A. |
| LA SEDA DE BARCELONA, S.A. |
| LEUCAN, S.A. |
| LINGOTES ESPECIALES, S.A. |
| LIWE ESPAÑOLA, S.A. |
| MECALUX, S.A. |
| MINERALES Y PRODUCTOS DERIVADOS, S.A. |
| MINERO SIDERURGICA DE PONFERRADA, S.A. |
| MIQUEL Y COSTAS & MIQUEL, S.A. |
| MONTEBALITO, S.A. |
| NATRA, S.A. |
| NATRACEUTICAL, S.A. |
| NICOLAS CORREA, S.A. |
| PAPELES Y CARTONES DE EUROPA, S.A. |
| PESCANOVA, S.A. |
| POPULARINSA, S.A. |
| PRIM, S.A. |
| PULEVA BIOTECH, S.A. |
| RUSTICAS, S.A. |
| S.A. PLAYA DE ALBORAYA |
| S.A. RONSA |
| SERVICE POINT SOLUTIONS, S.A. |
| SNIACE, S.A. |

**Appendix I: List of firms for 2004**

| FIRM NAME |
|---|
| SOCIEDAD ANONIMA HULLERA VASCO-LEONESA |
| SOCIEDAD ESPAÑOLA DEL ACUMULADOR TUDOR, S.A. |
| TAVEX ALGODONERA, S.A. |
| TUBOS REUNIDOS, S.A. |
| UNION CATALANA DE VALORES, S.A. |
| UNION EUROPEA DE INVERSIONES, S.A. |
| UNIPAPEL, S.A. |
| URBANIZACIONES Y TRANSPORTES, S.A. |
| URBAR INGENIEROS, S.A. |
| VALENCIANA DE NEGOCIOS, S.A. |
| BANCO DE VALENCIA, S.A. |
| COMPAÑIA VINÍCOLA DEL NORTE DE ESPAÑA, S.A. |
| CONSTRUCCIONES Y AUXILIAR DE FERROCARRILES, S.A. |
| CORPORACIÓN FINANCIERA ALBA, S.A. |
| EUROPISTAS, CONCESIONARIA ESPAÑOLA, S.A. |
| FLETAMENTOS MARÍTIMOS, S.A. |
| GAMESA CORPORACIÓN TECNOLÓGICA, S.A. |
| GRUPO FERROVIAL, S.A. |
| INDUSTRIA DE DISEÑO TEXTIL, S.A. |
| NH HOTELES, S.A. |
| RECOLETOS GRUPO DE COMUNICACIÓN, S.A. |
| RED ELÉCTRICA DE ESPAÑA, S.A. |
| REPSOL YPF, S.A. |
| SOGECABLE, S.A. |
| TAFISA, TABLEROS DE FIBRAS, S.A. |
| TECNOCOM,TELECOMUNICACIONES Y ENERGÍA, S.A. |
| TELEFÓNIA MÓVILES, S.A. |
| TELEFÓNICA PUBLICIDAD E INFORMACIÓN, S.A. |

# Appendix II: List of firms for 2009

| FIRM NAME |
|---|
| ABENGOA, S.A. |
| ABERTIS INFRAESTRUCTURAS, S.A. |
| ACCIONA, S.A. |
| ACERINOX, S.A. |
| ACS, ACTIVIDADES DE CONSTRUCCIÓN Y SERVICIOS, S.A. |
| ACTUACIONES ACTIVIDADES E INVERSIONES INMOBILIARIAS, S.A. |
| ADOLFO DOMINGUEZ, S.A. |
| AFIRMA GRUPO INMOBILIARIO, S.A. |
| AHORRO FAMILIAR, S.A. |
| LABORATORIOS ALMIRALL, S.A. |
| ALZA REAL ESTATE, S.A. |
| AMCI HABITAT, S.A. |
| AMPER, S.A. |
| ANTENA 3 DE TELEVISIÓN, S.A. |
| AVANZIT, S.A. |
| AYCO GRUPO INMOBILIARIO, S.A. |
| AZKOYEN, S.A. |
| BANCO DE SABADELL, S.A. |
| BANCO DE VALENCIA, S.A. |
| BANCO GUIPUZCOANO, S.A. |
| BANCO PASTOR, S.A. |
| BANCO POPULAR ESPAÑOL, S.A. |
| BANCO SANTANDER, S.A. |
| BANESTO, BANCO ESPAÑOL DE CRÉDITO, S.A. |
| BANKINTER, S.A. |
| BARON DE LEY, S.A. |
| BBVA, BANCO BILBAO VIZCAYA ARGENTARIA, S.A. |
| BEFESA MEDIO AMBIENTE, S.A. |
| BME, BOLSAS Y MERCADOS ESPAÑOLES, S.A. |

**Appendix II: List of firms for 2009**

| FIRM NAME |
|---|
| BODEGAS BILBAINAS, S.A. |
| BODEGAS RIOJANAS, S.A. |
| CAMPOFRIO FOOD GROUP, S.A. |
| CARTERA INDUSTRIAL REA, S.A. |
| CEMENTOS MOLINS, S.A. |
| CEMENTOS PORTLAND VALDERRIVAS, S.A. |
| CIE AUTOMOTIVE, S.A. |
| CIRCULO DE VALORES MOBILIARIOS, S.A. |
| CLINICA BAVIERA, S.A. |
| CODERE, S.A. |
| COMPANYIA D´AIGÜES DE SABADELL, S.A. |
| COMPAÑIA DE INVERSIONES CINSA, S.A. |
| COMPAÑIA DE INVERSIONES MOBILIARIAS BARCINO, S.A. |
| COMPAÑÍA ESPAÑOLA DE PETRÓLEOS, S.A. |
| COMPAÑIA ESPAÑOLA DE VIVIENDAS EN ALQUILER, S.A. |
| COMPAÑIA LEVANTINA DE EDIFICACION Y OBRAS PUBLICAS, S.A. |
| COMPAÑIA LOGISTICA DE HIDROCARBUROS CLH, S.A. |
| COMPAÑIA VINICOLA DEL NORTE DE ESPAÑA, S.A. |
| CONSTRUCCIONES Y AUXILIAR DE FERROCARRILES, S.A |
| CORPORACION DERMOESTETICA, S.A. |
| CORPORACIÓN FINANCIERA ALBA, S.A. |
| CRITERIA CAIXACORP, S.A. |
| DESARROLLOS ESPECIALES DE SISTEMAS DE ANCLAJES, S.A. |
| DINAMIA CAPITAL PRIVADO, S.A., SCR |
| DOGI INTERNATIONAL FABRICS, S.A. |
| DURO FELGUERA, S.A. |
| EBRO FOODS, S.A. |
| ECCOWOOD INVEST, S.A. |
| ELECNOR, S.A. |
| ENAGÁS, S.A. |
| ENDESA, S.A. |

| FIRM NAME |
|---|
| ERCROS, S.A. |
| EXIDE TECHNOLOGIES, S.A. |
| FAES FARMA, S.A. |
| FCC, FOMENTO DE CONSTRUCCIONES Y CONTRATAS, S.A. |
| GRUPO FERROVIAL, S.A. |
| FERSA ENERGIAS RENOVABLES, S.A. |
| FINANZAS E INVERSIONES VALENCIANAS, S.A. |
| FLUIDRA, S.A. |
| FUNESPAÑA, S.A. |
| GAESCO HOLDING, S.A. |
| GAMESA CORPORACIÓN TECNOLÓGICA, S.A. |
| GAS NATURAL SDG, S.A. |
| GENERAL DE ALQUILER DE MAQUINARIA, S.A. |
| GESTEVISIÓN TELECINCO, S.A. |
| GRIFOLS, S.A. |
| GRUPO CATALANA OCCIDENTE, S.A. |
| GRUPO EMPRESARIAL ENCE, S.A. |
| GRUPO EMPRESARIAL SAN JOSE, S.A. |
| GRUPO TAVEX, S.A. |
| IBERDROLA RENOVABLES, S.A. |
| IBERDROLA, S.A. |
| IBERIA LÍNEAS AÉREAS DE ESPAÑA, S.A. |
| IBERPAPEL GESTION, S.A. |
| INBESOS, S.A. |
| INDITEX, INDUSTRIA DE DISEÑO TEXTIL, S.A. |
| INDO INTERNACIONAL, S.A. |
| INDRA SISTEMAS, S.A. |
| INMOBILIARIA COLONIAL, S.A. |
| INMOBILIARIA DEL SUR, S.A. |
| INMOFIBAN, S.A. |
| INMOLEVANTE, S.A. |

| FIRM NAME |
|---|
| INVERFIATC, S.A. |
| INVERPYME, SCR, S.A. |
| INYPSA INFORMES Y PROYECTOS, S.A. |
| JAZZTEL, PLC. |
| LA SEDA DE BARCELONA, S.A. |
| LABORATORIOS FARMACEUTICOS ROVI, S.A. |
| LIBERTAS 7, S.A. |
| LINGOTES ESPECIALES, S.A. |
| LIWE ESPAÑOLA, S.A. |
| MAPFRE, S.A. |
| MARTINSA-FADESA, S.A. |
| MECALUX, S.A. |
| METROVACESA, S.A. |
| MINERALES Y PRODUCTOS DERIVADOS, S.A. |
| MIQUEL Y COSTAS & MIQUEL, S.A. |
| MONTEBALITO, S.A. |
| NATRA, S.A. |
| NATRACEUTICAL, S.A. |
| NH HOTELES, S.A. |
| NICOLAS CORREA, S.A. |
| OHL, OBRASCÓN HUARTE LAÍN, S.A. |
| PAPELES Y CARTONES DE EUROPA, S.A. |
| PESCANOVA, S.A. |
| PLARREGA INVEST 2000, S.A. |
| PRIM, S.A. |
| PROMOTORA DE INFORMACIONES, S.A. |
| PROSEGUR, COMPAÑÍA DE SEGURIDAD, S.A. |
| PULEVA BIOTECH, S.A. |
| REALIA BUSINESS, S.A. |
| RED ELÉCTRICA CORPORACIÓN, S.A. |
| RENTA 4 SERVICIOS DE INVERSION, S.A. |

| FIRM NAME |
|---|
| RENTA CORPORACION REAL ESTATE, S.A. |
| REPSOL YPF, S.A. |
| REYAL URBIS, S.A. |
| RUSTICAS, S.A. |
| S.A. RONSA |
| SACYR VALLEHERMOSO, S.A. |
| SERVICE POINT SOLUTIONS, S.A. |
| SNIACE, S.A. |
| SOCIEDAD ANÓNIMA DAMM |
| SOCIEDAD ANONIMA HULLERA VASCO-LEONESA |
| SOCIEDAD GENERAL DE AGUAS DE BARCELONA, S.A. |
| SOL MELIÁ, S.A. |
| SOLARIA ENERGIA Y MEDIOAMBIENTE, S.A. |
| SOS CORPORACION ALIMENTARIA, S.A. |
| SOTOGRANDE, S.A. |
| TÉCNICAS REUNIDAS, S.A. |
| TECNOCOM, TELECOMUNICACIONES Y ENERGIA, S.A. |
| TELEFÓNICA, S.A. |
| TESTA INMUEBLES EN RENTA, S.A. |
| TUBACEX, S.A. |
| TUBOS REUNIDOS, S.A. |
| UNION CATALANA DE VALORES, S.A. |
| UNION EUROPEA DE INVERSIONES, S.A. |
| UNIPAPEL, S.A. |
| URALITA, S.A. |
| URBAR INGENIEROS, S.A. |
| URBAS GUADAHERMOSA, S.A. |
| VERTICE TRESCIENTOS SESENTA GRADOS, S.A. |
| VIDRALA, S.A. |
| VISCOFAN, S.A. |
| VOCENTO, S.A. |

| FIRM NAME |
| --- |
| VUELING AIRLINES, S.A. |
| ZARDOYA OTIS, S.A. |
| ZELTIA, S.A. |

# Appendix III: Summary of the information for 2004

| Firm | Activity | Board members | Insiders | Outsiders: Share capital | Outsiders: Independent | Other outsiders | Interlocks provided by insiders | Interlocks provided by outsiders |
|---|---|---|---|---|---|---|---|---|
| ABENGOA, S.A. | Other market services | 7 | 2 | 2 | 3 | 0 | 0 | 7 |
| ABERTIS INFRAESTRUCTURAS, S.A. | Parking and highways | 19 | 1 | 14 | 4 | 0 | 0 | 15 |
| ACCIONA, S.A. | Construction | 11 | 4 | 2 | 5 | 0 | 0 | 6 |
| ACERINOX, S.A. | Metals | 14 | 3 | 7 | 3 | 1 | 0 | 5 |
| ACS, ACTIVIDADES DE CONSTRUCCIÓN Y SERVICIOS S.A. | Construction | 18 | 4 | 8 | 6 | 0 | 1 | 15 |
| ADOLFO DOMINGUEZ, S.A. | Textile, clothing and footwear | 7 | 2 | 1 | 4 | 0 | 0 | 2 |
| AGRUPACIO ACTIVIDADES E INVERSIONES INMOBILIARIAS, S.A. | Real estate and other | 5 | 1 | 3 | 1 | 0 | 0 | 1 |
| AGUAS DE VALENCIA, S.A. | Water | 14 | 14 | 0 | 0 | 0 | 2 | 0 |
| AHORRO FAMILIAR, S.A. | Real estate | 8 | 2 | 3 | 3 | 0 | 0 | 0 |
| ALDEASA, S.A. | Retail | 14 | 3 | 4 | 7 | 0 | 2 | 2 |
| ALTADIS, S.A. | Drinks and Tobacco | 18 | 3 | 0 | 15 | 0 | 3 | 10 |
| AMADEUS GLOBAL TRAVEL DISTRIBUTION, S.A. | Leisure, tourism and hospitality | 11 | 0 | 8 | 3 | 0 | 0 | 0 |
| AMPER, S.A. | Electronics and software | 11 | 3 | 3 | 5 | 0 | 2 | 4 |
| ANTENA 3 DE TELEVISION, S.A. | Advertising, press and R.T.V. | 12 | 1 | 8 | 3 | 0 | 0 | 4 |
| AVANZIT, S.A. | Telecommunications | 9 | 2 | 1 | 6 | 0 | 0 | 0 |
| AYCO GRUPO INMOBILIARIO, S.A. | Real estate | 5 | 0 | 4 | 1 | 0 | 0 | 0 |

## Appendix III: Summary of the information for 2004

| Firm | Activity | Board members | Insiders | Outsiders: Share capital | Outsiders: Independent | Other outsiders | Interlocks provided by insiders | Interlocks provided by outsiders |
|---|---|---|---|---|---|---|---|---|
| AZKOYEN, S.A. | Manufacture and assembly equipment | 9 | 1 | 2 | 6 | 0 | 1 | 3 |
| BANCO BILBAO VIZCAYA ARGENTARIA, S.A. | Banking | 15 | 3 | 0 | 10 | 2 | 0 | 2 |
| BANCO DE ANDALUCIA, S.A. | Banking | 6 | 1 | 5 | 0 | 0 | 0 | 0 |
| BANCO DE CASTILLA, S.A. | Banking | 5 | 1 | 4 | 0 | 0 | 0 | 0 |
| BANCO DE CREDITO BALEAR, S.A. | Banking | 5 | 1 | 4 | 0 | 0 | 0 | 0 |
| BANCO DE GALICIA, S.A. | Banking | 5 | 1 | 4 | 0 | 0 | 0 | 2 |
| BANCO DE PROMOCION DE NEGOCIOS, S.A. (PROMOBANC) | Financing and Insurance | 6 | 3 | 3 | 0 | 0 | 0 | 0 |
| BANCO DE SABADELL, S.A. | Banking | 11 | 3 | 1 | 4 | 3 | 0 | 2 |
| BANCO DE VALENCIA, S.A. | Banking | 16 | 1 | 6 | 9 | 0 | 0 | 7 |
| BANCO DE VASCONIA, S.A. | Banking | 5 | 1 | 4 | 0 | 0 | 0 | 0 |
| BANCO ESPAÑOL DE CREDITO, S.A. | Banking | 11 | 3 | 2 | 6 | 0 | 0 | 4 |
| BANCO GUIPUZCOANO, S.A. | Banking | 11 | 0 | 4 | 7 | 0 | 0 | 7 |
| BANCO PASTOR, S.A. | Banking | 9 | 3 | 2 | 2 | 2 | 1 | 1 |
| BANCO POPULAR ESPAÑOL, S.A. | Banking | 19 | 4 | 6 | 9 | 0 | 0 | 4 |
| BANCO SANTANDER CENTRAL HISPANO, S.A. | Banking | 19 | 5 | 4 | 6 | 4 | 5 | 15 |
| BANKINTER, S.A. | Banking | 9 | 2 | 3 | 4 | 0 | 2 | 4 |
| BARCELONESA DE INVERSIONES MOBILIARIAS, S.A. | Portfolio companies | 3 | 3 | 0 | 0 | 0 | 0 | 0 |
| BARON DE LEY, S.A. | Beverages and tobacco | 7 | 3 | 0 | 4 | 0 | 0 | 2 |
| BEFESA MEDIO AMBIENTE, S.A. | Other market services | 7 | 2 | 2 | 3 | 0 | 0 | 0 |

**Appendix III: Summary of the information for 2004**

| Firm | Activity | Board members | Insiders | Outsiders: Share capital | Outsiders: Independent | Other outsiders | Interlocks provided by insiders | Interlocks provided by outsiders |
|---|---|---|---|---|---|---|---|---|
| BODEGAS BILBAINAS, S.A. | Beverages and tobacco | 4 | 2 | 1 | 1 | 0 | 0 | 0 |
| BODEGAS RIOJANAS, S.A. | Beverages and tobacco | 9 | 2 | 4 | 2 | 1 | 0 | 1 |
| BYADA, S.A. | Agriculture and fisheries | 5 | 2 | 2 | 1 | 0 | 1 | 1 |
| CALPE INVEST, S.A. | Real estate | 5 | 2 | 1 | 2 | 0 | 2 | 10 |
| CAMPOFRIO FOOD GROUP, S.A. | Food | 8 | 1 | 5 | 1 | 1 | 1 | 3 |
| CARROGGIO, S.A. DE EDICIONES | Paper and graphic arts | 4 | 1 | 0 | 0 | 3 | 0 | 0 |
| CARTERA HOTELERA, S.A. | Portfolio and Holding | 13 | 0 | 4 | 9 | 0 | 0 | 4 |
| CEMENTOS LEMONA, S.A. | Construction materials | 8 | 0 | 4 | 0 | 4 | 0 | 2 |
| CEMENTOS MOLINS, S.A. | Construction materials | 12 | 1 | 11 | 0 | 0 | 1 | 6 |
| CEMENTOS PORTLAND VALDERRIVAS, S.A. | Construction materials | 15 | 3 | 7 | 5 | 0 | 0 | 4 |
| CIE AUTOMOTIVE, S.A. | Metals | 10 | 1 | 8 | 1 | 0 | 0 | 1 |
| CINTRA CONCESIONES DE INFRAESTRUCTURAS DE TRANSPORTE, S.A. | Parking and highways | 8 | 1 | 4 | 3 | 0 | 1 | 5 |
| CIRCULO DE VALORES MOBILIARIOS, S.A. | Portfolio and Holding | 5 | 1 | 4 | 0 | 0 | 0 | 0 |
| COMPANYIA D´AIGÜES DE SABADELL, S.A. | Water | 13 | 0 | 6 | 0 | 7 | 0 | 1 |
| COMPAÑIA DE DISTRIBUCION INTEGRAL LOGISTA, S.A | Transport and distribution | 9 | 2 | 4 | 3 | 0 | 4 | 8 |
| COMPAÑIA DE INVERSIONES CINSA, S.A. | Real estate | 5 | 1 | 0 | 4 | 0 | 0 | 0 |

**Appendix III: Summary of the information for 2004**

| Firm | Activity | Board members | Insiders | Outsiders: Share capital | Outsiders: Independent | Other outsiders | Interlocks provided by insiders | Interlocks provided by outsiders |
|---|---|---|---|---|---|---|---|---|
| COMPAÑIA DE INVERSIONES MOBILIARIAS BARCINO, S.A | Portfolio and Holding | 5 | 1 | 0 | 4 | 0 | 0 | 0 |
| COMPAÑIA ESPAÑOLA DE PETROLEOS, S.A. | Oil, Gas and other sources | 19 | 2 | 15 | 2 | 0 | 2 | 12 |
| COMPAÑIA ESPAÑOLA DE VIVIENDAS EN ALQUILER, S.A. | Real estate | 6 | 3 | 2 | 1 | 0 | 0 | 0 |
| COMPAÑIA ESPAÑOLA PARA LA FABRICACION MECANICA DEL VIDRIO, S.A. | Construction materials | 6 | 1 | 5 | 0 | 0 | 0 | 0 |
| COMPAÑÍA LEVANTINA DE EDIFICACIÓN Y OBRAS PÚBLICAS, S.A. | Construction | 7 | 1 | 5 | 1 | 0 | 0 | 1 |
| COMPAÑIA LOGISTICA DE HIDROCARBUROS CLH, S.A. | Transport and distribution | 20 | 2 | 18 | 0 | 0 | 0 | 3 |
| COMPAÑIA VINÍCOLA DEL NORTE DE ESPAÑA, S.A. | Beverages and tobacco | 8 | 1 | 3 | 4 | 0 | 0 | 3 |
| CONSTRUCCIONES Y AUXILIAR DE FERROCARRILES, S.A. | Manufacture and assembly equipment | 10 | 3 | 4 | 3 | 0 | 0 | 5 |
| CORPORACIÓN FINANCIERA ALBA, S.A. | Portfolio and Holding | 11 | 3 | 3 | 4 | 1 | 4 | 6 |
| CORPORACIÓN MAPFRE, S.A. | Insurance | 18 | 3 | 12 | 3 | 0 | 0 | 0 |
| CORTEFIEL, S.A. | Textile, clothing and footwear | 15 | 2 | 8 | 5 | 0 | 2 | 6 |
| DESARROLLO MOBILIARIO, S.A. | Portfolio companies | 6 | 0 | 6 | 0 | 0 | 0 | 0 |
| DINAMIA CAPITAL PRIVADO, S.A., SCR | Portfolio and Holding | 6 | 0 | 2 | 4 | 0 | 0 | 4 |
| DOGI INTERNATIONAL FABRICS, S.A. | Textile, clothing and footwear | 9 | 3 | 1 | 3 | 2 | 0 | 1 |

**Appendix III: Summary of the information for 2004**

| Firm | Activity | Board members | Insiders | Outsiders: Share capital | Outsiders: Independent | Other outsiders | Interlocks provided by insiders | Interlocks provided by outsiders |
|---|---|---|---|---|---|---|---|---|
| DURO FELGUERA, S.A. | Manufacture and assembly equipment | 12 | 2 | 8 | 2 | 0 | 0 | 0 |
| EBRO FOODS, S.A. | Food | 14 | 4 | 6 | 3 | 1 | 4 | 8 |
| ELECNOR, S.A. | Manufacture and assembly equipment | 11 | 2 | 9 | 0 | 0 | 0 | 0 |
| ENAGÁS, S.A. | Oil, Gas and other sources | 16 | 1 | 8 | 7 | 0 | 0 | 14 |
| ENDESA, S.A. | Electricity | 15 | 2 | 1 | 12 | 0 | 0 | 14 |
| ERCROS, S.A. | Chemical industry | 8 | 1 | 2 | 5 | 0 | 0 | 6 |
| ESPAÑOLA DEL ZINC, S.A. | Metals | 10 | 1 | 9 | 0 | 0 | 0 | 0 |
| EUROPISTAS, CONCESIONARIA ESPAÑOLA, S.A. | Parking and highways | 12 | 1 | 11 | 0 | 0 | 0 | 9 |
| FADESA INMOBILIARIA, S.A. | Real estate and other | 9 | 4 | 1 | 3 | 1 | 6 | 1 |
| FAES FARMA, S.A. | Other consumer goods | 10 | 4 | 4 | 2 | 0 | 0 | 6 |
| FEDERICO PATERNINA, S.A. | Beverages and tobacco | 6 | 2 | 1 | 3 | 0 | 0 | 1 |
| FERSA ENERGIAS RENOVABLES, S.A. | Renewable Energy | 10 | 4 | 6 | 0 | 0 | 0 | 0 |
| FINANZAS E INVERSIONES VALENCIANAS, S.A. | Real estate and other | 4 | 0 | 1 | 3 | 0 | 0 | 3 |
| FLETAMENTOS MARÍTIMOS, S.A. | Transport and distribution | 7 | 3 | 0 | 2 | 2 | 0 | 1 |
| FOMENTO BALEAR DE INVERSIONES, S.A. | Real estate | 4 | 0 | 2 | 2 | 0 | 0 | 0 |
| FOMENTO DE CONSTRUCCIONES Y CONTRATAS, S.A. | Construction | 15 | 2 | 11 | 2 | 0 | 0 | 4 |

**Appendix III: Summary of the information for 2004**

| Firm | Activity | Board members | Insiders | Outsiders: Share capital | Outsiders: Independent | Other outsiders | Interlocks provided by insiders | Interlocks provided by outsiders |
|---|---|---|---|---|---|---|---|---|
| FORUM INMOBILIARIO CISNEROS, S.A. | Real estate and other | 7 | 1 | 3 | 3 | 0 | 2 | 7 |
| FUNESPAÑA, S.A. | Other market services | 8 | 3 | 1 | 4 | 0 | 0 | 0 |
| GAESCO HOLDING, S.A. | Portfolio companies | 9 | 3 | 4 | 2 | 0 | 0 | 0 |
| GAMESA CORPORACIÓN TECNOLÓGICA, S.A. | Manufacture and assembly equipment | 10 | 1 | 7 | 2 | 0 | 0 | 3 |
| GAS NATURAL SDG, S.A. | Oil, Gas and other sources | 16 | 2 | 9 | 5 | 0 | 2 | 9 |
| GESTEVISIÓN TELECINCO, S.A. | Advertising, press and R.T.V. | 13 | 2 | 7 | 4 | 0 | 0 | 0 |
| GRUPO CATALANA OCCIDENTE, S.A. | Insurance | 14 | 3 | 11 | 0 | 0 | 0 | 0 |
| GRUPO EMPRESARIAL ENCE, S.A. | Paper, wood and chemical | 11 | 1 | 6 | 4 | 0 | 0 | 5 |
| GRUPO FERROVIAL, S.A. | Construction | 11 | 3 | 3 | 5 | 0 | 1 | 6 |
| GRUPO INMOCARAL,S.A. | Real estate | 9 | 4 | 2 | 3 | 0 | 0 | 0 |
| HISPANA HOLDING, S.A. | Portfolio and Holding | 4 | 1 | 2 | 1 | 0 | 0 | 0 |
| HULLAS DEL COTO CORTES, S.A. | Oil, Gas and other sources | 5 | 0 | 0 | 2 | 3 | 0 | 2 |
| IBERDROLA, S.A. | Electricity | 21 | 2 | 5 | 10 | 4 | 1 | 7 |
| IBERIA LÍNEAS AÉREAS DE ESPAÑA, S.A. | Transport and distribution | 12 | 2 | 6 | 4 | 0 | 0 | 15 |
| IBERPAPEL GESTION, S.A. | Paper and graphic arts | 9 | 2 | 5 | 2 | 0 | 1 | 3 |
| INBESOS S.A. | Real estate | 8 | 5 | 3 | 0 | 0 | 0 | 0 |
| INDO INTERNACIONAL, S.A. | Other consumer goods | 6 | 0 | 6 | 0 | 0 | 0 | 6 |
| INDRA SISTEMAS, S.A. | Electronics and software | 12 | 3 | 2 | 7 | 0 | 1 | 6 |

**Appendix III: Summary of the information for 2004**

| Firm | Activity | Board members | Insiders | Outsiders: Share capital | Outsiders: Independent | Other outsiders | Interlocks provided by insiders | Interlocks provided by outsiders |
|---|---|---|---|---|---|---|---|---|
| INDUSTRIA DE DISEÑO TEXTIL, S.A. | Textile, clothing and footwear | 10 | 4 | 1 | 5 | 0 | 1 | 3 |
| INDUSTRIAS DEL ACETATO DE CELULOSA, S.A. | Textile, clothing and footwear | 4 | 1 | 3 | 0 | 0 | 0 | 0 |
| INDUSTRIAS DEL CURTIDO, S.A. | Textile, clothing and footwear | 4 | 0 | 4 | 0 | 0 | 0 | 3 |
| INMO DEALER, S.A. | Real estate | 6 | 1 | 2 | 2 | 1 | 3 | 21 |
| INMOBILIARIA CARROGGIO, S.A. | Real estate | 1 | 1 | 0 | 0 | 0 | 1 | 0 |
| INMOBILIARIA COLONIAL, S.A. | Real estate and other | 9 | 1 | 6 | 2 | 0 | 0 | 10 |
| INMOBILIARIA DEL SUR, S.A. | Real estate | 18 | 1 | 11 | 2 | 4 | 0 | 0 |
| INMOBILIARIA URBIS, S.A. | Real estate | 12 | 2 | 6 | 4 | 0 | 0 | 7 |
| INMOCAHISPA, S.A. | Investment funds | 6 | 3 | 2 | 1 | 0 | 1 | 0 |
| INMOFIBAN, S.A. | Real estate and other | 7 | 1 | 6 | 0 | 0 | 0 | 0 |
| INMUEBLES DE CAJA HIPOTECARIA CATALANA MUTUAL, S.A. | Real estate and other | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| INVERFIATC, S.A. | Other services | 11 | 3 | 6 | 2 | 0 | 2 | 1 |
| INVERPYME SCR, S.A. | Portfolio and Holding | 10 | 1 | 3 | 6 | 0 | 0 | 0 |
| INVERSIONES AZALBA, S.A. | Portfolio and Holding | 5 | 1 | 1 | 2 | 1 | 2 | 2 |
| INYPSA INFORMES Y PROYECTOS, S.A. | Other market services | 8 | 1 | 6 | 1 | 0 | 0 | 1 |
| JAZZTEL, PLC. | Telecommunic ations | 9 | 2 | 3 | 4 | 0 | 0 | 1 |
| JOAQUIM ALBERTI, S.A. | Beverages and tobacco | 1 | 1 | 0 | 0 | 0 | 0 | 0 |

**Appendix III: Summary of the information for 2004**

| Firm | Activity | Board members | Insiders | Outsiders: Share capital | Outsiders: Independent | Other outsiders | Interlocks provided by insiders | Interlocks provided by outsiders |
|---|---|---|---|---|---|---|---|---|
| LA SEDA DE BARCELONA, S.A. | Paper and graphic arts | 16 | 1 | 11 | 4 | 0 | 1 | 0 |
| LEUCAN, S.A. | Other services | 5 | 2 | 1 | 2 | 0 | 0 | 1 |
| LIBERTAS 7, S.A. | Real estate and other | 8 | 2 | 3 | 3 | 0 | 4 | 8 |
| LINGOTES ESPECIALES, S.A. | Metals | 12 | 3 | 9 | 0 | 0 | 0 | 0 |
| LIWE ESPAÑOLA, S.A. | Textile, clothing and footwear | 5 | 3 | 0 | 2 | 0 | 0 | 0 |
| MECALUX, S.A. | Manufacture and assembly equipment | 7 | 3 | 2 | 2 | 0 | 0 | 0 |
| METROVACESA, S.A. | Real Estate | 20 | 3 | 10 | 7 | 0 | 0 | 5 |
| MINERALES Y PRODUCTOS DERIVADOS, S.A. | Mineral / Metals / Processing | 6 | 2 | 4 | 0 | 0 | 0 | 0 |
| MINERO SIDERURGICA DE PONFERRADA, S.A. | Oil, Gas and other sources | 9 | 1 | 0 | 8 | 0 | 0 | 0 |
| MIQUEL Y COSTAS & MIQUEL, S.A. | Paper and graphic arts | 10 | 2 | 6 | 2 | 0 | 4 | 28 |
| MONTEBALITO, S.A. | Real estate | 4 | 1 | 3 | 0 | 0 | 0 | 0 |
| NATRA, S.A. | Food | 7 | 1 | 4 | 0 | 2 | 0 | 1 |
| NATRACEUTICAL, S.A. | Pharmaceutica ls | 4 | 0 | 3 | 1 | 0 | 0 | 3 |
| NH HOTELES, S.A. | Leisure, tourism and hospitality | 13 | 1 | 5 | 7 | 0 | 1 | 11 |
| NICOLAS CORREA, S.A. | Manufacture and assembly equipment | 6 | 2 | 1 | 3 | 0 | 0 | 2 |
| OBRASCON HUARTE LAIN, S.A. | Construction | 12 | 2 | 5 | 5 | 0 | 0 | 4 |
| PAPELES Y CARTONES DE EUROPA, S.A. | Paper and graphic arts | 7 | 4 | 1 | 2 | 0 | 0 | 0 |
| PESCANOVA, S.A. | Food | 8 | 2 | 5 | 1 | 0 | 1 | 8 |
| POPULARINSA, S.A. | Portfolio and Holding | 9 | 4 | 3 | 1 | 1 | 4 | 5 |

**Appendix III: Summary of the information for 2004**

| Firm | Activity | Board members | Insiders | Outsiders: Share capital | Outsiders: Independent | Other outsiders | Interlocks provided by insiders | Interlocks provided by outsiders |
|---|---|---|---|---|---|---|---|---|
| PRIM, S.A. | Other consumer goods | 6 | 4 | 0 | 2 | 0 | 0 | 0 |
| PROMOCIONES Y CONCIERTOS INMOBILIARIOS, S.A. | Real estate | 12 | 1 | 6 | 5 | 0 | 0 | 0 |
| PROMOTORA DE INFORMACIONES, S.A. | Advertising, press and R.T.V. | 20 | 7 | 7 | 6 | 0 | 11 | 25 |
| PROSEGUR, COMPAÑIA DE SEGURIDAD, S.A. | Other market services | 9 | 4 | 3 | 2 | 0 | 0 | 7 |
| PULEVA BIOTECH, S.A. | Food | 8 | 0 | 3 | 5 | 0 | 0 | 8 |
| RECOLETOS GRUPO DE COMUNICACIÓN, S.A. | Advertising, press and R.T.V. | 12 | 3 | 3 | 5 | 1 | 0 | 1 |
| RED ELÉCTRICA DE ESPAÑA, S.A. | Electricity | 11 | 1 | 5 | 5 | 0 | 0 | 8 |
| REPSOL YPF, S.A. | Oil, Gas and other sources | 14 | 2 | 5 | 6 | 1 | 1 | 11 |
| RUSTICAS, S.A. | Real estate | 6 | 4 | 0 | 2 | 0 | 0 | 1 |
| S.A. PLAYA DE ALBORAYA | Real estate | 5 | 0 | 2 | 3 | 0 | 0 | 3 |
| S.A. RONSA | Real estate | 4 | 2 | 2 | 0 | 0 | 1 | 1 |
| SACYR VALLEHERMOSO, S.A. | Construction | 14 | 5 | 8 | 1 | 0 | 1 | 11 |
| SERVICE POINT SOLUTIONS, S.A. | Retail | 7 | 2 | 0 | 5 | 0 | 0 | 0 |
| SNIACE, S.A. | Paper and graphic arts | 8 | 2 | 2 | 4 | 0 | 0 | 0 |
| SOCIEDAD ANONIMA DAMM | Beverages and tobacco | 7 | 1 | 6 | 0 | 0 | 2 | 0 |
| SOCIEDAD ANONIMA HULLERA VASCO-LEONESA | Oil, Gas and other sources | 7 | 4 | 0 | 0 | 3 | 0 | 0 |
| SOCIEDAD ESPAÑOLA DEL ACUMULADOR TUDOR, S.A. | Manufacture and assembly equipment | 3 | 2 | 1 | 0 | 0 | 0 | 0 |

**Appendix III: Summary of the information for 2004**

| Firm | Activity | Board members | Insiders | Outsiders: Share capital | Outsiders: Independent | Other outsiders | Interlocks provided by insiders | Interlocks provided by outsiders |
|---|---|---|---|---|---|---|---|---|
| SOCIEDAD GENERAL DE AGUAS DE BARCELONA, S.A. | Other market services | 14 | 1 | 7 | 2 | 4 | 2 | 9 |
| SOGECABLE, S.A. | Advertising, press and R.T.V. | 21 | 1 | 16 | 4 | 0 | 1 | 11 |
| SOL MELIA S.A. | Leisure, tourism and hospitality | 12 | 3 | 3 | 5 | 1 | 0 | 1 |
| SOS CUÉTARA, S.A. | Food and beverage | 15 | 5 | 7 | 3 | 0 | 0 | 4 |
| SOTOGRANDE, S.A. | Real estate | 12 | 1 | 6 | 2 | 3 | 0 | 8 |
| TAFISA, TABLEROS DE FIBRAS, S.A. | Paper and graphic arts | 6 | 3 | 1 | 2 | 0 | 0 | 2 |
| TAVEX ALGODONERA, S.A. | Textile, clothing and footwear | 12 | 2 | 6 | 4 | 0 | 0 | 0 |
| TECNOCOM,TELECOMUNICACIONES Y ENERGÍA, S.A. | Telecommunications and other | 11 | 1 | 4 | 6 | 0 | 2 | 5 |
| TELE PIZZA, S.A. | Food and beverage | 10 | 2 | 2 | 5 | 1 | 0 | 4 |
| TELEFÓNIA MÓVILES, S.A. | Telecommunications | 14 | 1 | 8 | 5 | 0 | 1 | 14 |
| TELEFÓNICA PUBLICIDAD E INFORMACIÓN, S.A. | Advertising, press and R.T.V. | 8 | 1 | 2 | 5 | 0 | 0 | 3 |
| TELEFÓNICA, S.A. | Telecommunications | 19 | 5 | 6 | 8 | 0 | 4 | 19 |
| TERRA NETWORKS, S.A. | Electronics and software | 9 | 1 | 5 | 3 | 0 | 0 | 5 |
| TESTA INMUEBLES EN RENTA, S.A. | Real estate | 12 | 3 | 6 | 3 | 0 | 0 | 5 |
| TRANSPORTES AZKAR, S.A. | Transport and distribution | 10 | 2 | 8 | 0 | 0 | 0 | 5 |
| TUBACEX, S.A. | Metals | 9 | 1 | 1 | 7 | 0 | 0 | 1 |

**Appendix III: Summary of the information for 2004**

| Firm | Activity | Board members | Insiders | Outsiders: Share capital | Outsiders: Independent | Other outsiders | Interlocks provided by insiders | Interlocks provided by outsiders |
|---|---|---|---|---|---|---|---|---|
| TUBOS REUNIDOS, S.A. | Mineral / Metals / Processing | 11 | 3 | 8 | 0 | 0 | 0 | 4 |
| UNION CATALANA DE VALORES, S.A. | Portfolio and Holding | 5 | 1 | 4 | 0 | 0 | 3 | 1 |
| UNION EUROPEA DE INVERSIONES, S.A. | Portfolio and Holding | 9 | 1 | 0 | 8 | 0 | 0 | 3 |
| UNION FENOSA, S.A. | Electricity | 20 | 3 | 11 | 5 | 1 | 4 | 25 |
| UNIPAPEL, S.A. | Paper and graphic arts | 11 | 2 | 3 | 6 | 0 | 2 | 3 |
| URALITA, S.A. | Construction materials | 12 | 4 | 5 | 3 | 0 | 0 | 5 |
| URBANIZACIONES Y TRANSPORTES, S.A. | Real estate | 5 | 1 | 2 | 2 | 0 | 0 | 0 |
| URBAR INGENIEROS, S.A. | Engineering and others | 6 | 1 | 2 | 3 | 0 | 0 | 0 |
| VALENCIANA DE NEGOCIOS, S.A. | Portfolio companies | 7 | 1 | 3 | 3 | 0 | 2 | 11 |
| VIDRALA, S.A. | Leisure, tourism and hospitality | 10 | 0 | 6 | 4 | 0 | 0 | 1 |
| VISCOFAN, S.A. | Food and beverage | 7 | 1 | 2 | 4 | 0 | 1 | 7 |
| ZARDOYA OTIS, S.A. | Manufacture and assembly equipment | 9 | 1 | 7 | 1 | 0 | 1 | 4 |
| ZELTIA, S.A. | Other consumer goods | 11 | 2 | 4 | 3 | 2 | 0 | 10 |

# Appendix IV: Summary of the information for 2009

| Firm | Activity | Board members | Insiders | Outsiders: Share capital | Outsiders: Independent | Other outsiders | Interlocks provided by insiders | Interlocks provided by outsiders |
|---|---|---|---|---|---|---|---|---|
| ABENGOA, S.A. | Engineering and Other | 15 | 2 | 7 | 6 | 0 | 3 | 1 |
| ABERTIS INFRAESTRUCTURAS, S.A. | Highways / Parking | 20 | 2 | 14 | 4 | 0 | 1 | 15 |
| ACCIONA, S.A. | Construction | 12 | 2 | 2 | 7 | 1 | 0 | 4 |
| ACERINOX, S.A. | Mineral / Metals / Processing | 15 | 1 | 10 | 3 | 1 | 0 | 5 |
| ACS, ACTIVIDADES DE CONSTRUCCIÓN Y SERVICIOS, S.A. | Construction | 19 | 4 | 9 | 5 | 1 | 2 | 17 |
| ACTUACIONES ACTIVIDADES E INVERSIONES INMOBILIARIAS, S.A. | Real Estate and Other | 8 | 1 | 0 | 7 | 0 | | |
| ADOLFO DOMINGUEZ, S.A. | Textile / Clothing / Footwear | 8 | 3 | 3 | 2 | 0 | 0 | 3 |
| AFIRMA GRUPO INMOBILIARIO, S.A. | Real Estate and Other | 8 | 2 | 4 | 2 | 0 | 0 | 5 |
| AHORRO FAMILIAR, S.A. | Real Estate and Other | 7 | 2 | 3 | 1 | 1 | | |
| LABORATORIOS ALMIRALL, S.A. | Pharmaceutical Products | 9 | 4 | 2 | 3 | 0 | 0 | 2 |
| ALZA REAL ESTATE, S.A. | Real Estate and Other | 6 | 2 | 2 | 2 | 0 | 0 | 3 |
| AMCI HABITAT, S.A. | Real Estate and Other | 4 | 0 | 4 | 0 | 0 | | |
| AMPER, S.A. | Electronics / Software | 10 | 1 | 3 | 6 | 0 | 0 | 6 |
| ANTENA 3 DE TELEVISIÓN, S.A. | Communication Media and Advertising | 11 | 3 | 5 | 3 | 0 | 1 | 1 |
| AVANZIT, S.A. | Telecommunications and Other | 10 | 1 | 4 | 5 | 0 | 0 | 4 |
| AYCO GRUPO INMOBILIARIO, S.A. | Real Estate and Other | 5 | 0 | 4 | 0 | 1 | | |

## Appendix IV: Summary of the information for 2009

| Firm | Activity | Board members | Insiders | Outsiders: Share capital | Outsiders: Independent | Other outsiders | Interlocks provided by insiders | Interlocks provided by outsiders |
|---|---|---|---|---|---|---|---|---|
| AZKOYEN, S.A. | Equipment goods | 9 | 2 | 4 | 3 | 0 | 2 | 4 |
| BANCO DE SABADELL, S.A. | Banks / Savings | 13 | 2 | 2 | 7 | 2 | 0 | 3 |
| BANCO DE VALENCIA, S.A. | Banks / Savings | 16 | 1 | 7 | 8 | 0 | 0 | 4 |
| BANCO GUIPUZCOANO, S.A. | Banks / Savings | 11 | 3 | 7 | 1 | 0 | 0 | 7 |
| BANCO PASTOR, S.A. | Banks / Savings | 9 | 2 | 3 | 4 | 0 | 0 | 1 |
| BANCO POPULAR ESPAÑOL, S.A. | Banks / Savings | 18 | 4 | 6 | 6 | 2 | 0 | 4 |
| BANCO SANTANDER, S.A. | Banks / Savings | 19 | 6 | 2 | 10 | 1 | 4 | 7 |
| BANESTO, BANCO ESPAÑOL DE CRÉDITO, S.A. | Banks / Savings | 14 | 4 | 2 | 7 | 1 | 0 | 4 |
| BANKINTER, S.A. | Banks / Savings | 11 | 2 | 3 | 5 | 1 | 1 | 2 |
| BARON DE LEY, S.A. | Food & Beverage | 6 | 3 | 0 | 2 | 1 | 0 | 4 |
| BBVA, BANCO BILBAO VIZCAYA ARGENTARIA, S.A. | Banks / Savings | 13 | 2 | 0 | 10 | 1 | 0 | 0 |
| BEFESA MEDIO AMBIENTE, S.A. | Engineering and Other | 10 | 2 | 4 | 4 | 0 | 0 | 0 |
| BME, BOLSAS Y MERCADOS ESPAÑOLES, S.A. | Investment Services | 15 | 2 | 8 | 5 | 0 | 0 | 2 |
| BODEGAS BILBAINAS, S.A. | Food & Beverage | 5 | 3 | 1 | 1 | 0 | 0 | 0 |
| BODEGAS RIOJANAS, S.A. | Food & Beverage | 10 | 2 | 5 | 2 | 1 | 0 | 2 |
| CAMPOFRIO FOOD GROUP, S.A. | Food & Beverage | 9 | 1 | 5 | 3 | 0 | 0 | 1 |

## Appendix IV: Summary of the information for 2009

| Firm | Activity | Board members | Insiders | Outsiders: Share capital | Outsiders: Independent | Other outsiders | Interlocks provided by insiders | Interlocks provided by outsiders |
|---|---|---|---|---|---|---|---|---|
| CARTERA INDUSTRIAL REA, S.A. | Portfolio and Holding | 15 | 1 | 11 | 3 | 0 | 0 | 14 |
| CEMENTOS MOLINS, S.A. | Building materials | 12 | 1 | 10 | 0 | 1 | 1 | 4 |
| CEMENTOS PORTLAND VALDERRIVAS, S.A. | Building materials | 14 | 1 | 7 | 4 | 2 | 0 | 6 |
| CIE AUTOMOTIVE, S.A. | Mineral / Metals / Processing | 12 | 1 | 9 | 1 | 1 | 0 | 5 |
| CIRCULO DE VALORES MOBILIARIOS, S.A. | Portfolio and Holding | 5 | 1 | 4 | 0 | 0 | 0 | 0 |
| CLINICA BAVIERA, S.A. | Other Services | 8 | 2 | 3 | 3 | 0 | 0 | 0 |
| CODERE, S.A. | Leisure / Travel / Hospitality | 9 | 3 | 3 | 3 | 0 | 0 | 0 |
| COMPANYIA D´AIGÜES DE SABADELL, S.A. | Water and other | 13 | 0 | 8 | 0 | 5 | 0 | 1 |
| COMPAÑIA DE INVERSIONES CINSA, S.A. | Real Estate and Other | 3 | 3 | 0 | 0 | 0 | 0 | 0 |
| COMPAÑIA DE INVERSIONES MOBILIARIAS BARCINO, S.A. | Portfolio and Holding | 5 | 1 | 0 | 3 | 1 | 0 | 0 |
| COMPAÑÍA ESPAÑOLA DE PETRÓLEOS, S.A. | Oil | 13 | 1 | 9 | 3 | 0 | 1 | 5 |
| COMPAÑIA ESPAÑOLA DE VIVIENDAS EN ALQUILER, S.A. | Real Estate and Other | 6 | 3 | 3 | 0 | 0 | 0 | 0 |
| COMPAÑIA LEVANTINA DE EDIFICACION Y OBRAS PUBLICAS, S.A. | Construction | 7 | 2 | 3 | 2 | 0 | 0 | 5 |
| COMPAÑIA LOGISTICA DE HIDROCARBUROS CLH, S.A. | Transport / Distribution | 20 | 1 | 19 | 0 | 0 | 0 | 6 |
| COMPAÑIA VINICOLA DEL NORTE DE ESPAÑA, S.A. | Food & Beverage | 8 | 1 | 5 | 2 | 0 | 2 | 3 |
| CONSTRUCCIONES Y AUXILIAR DE FERROCARRILES, S.A | Equipment goods | 10 | 3 | 2 | 2 | 3 | 1 | 4 |
| CORPORACION DERMOESTETICA, S.A. | Other Services | 6 | 3 | 2 | 1 | 0 | 0 | 4 |

**Appendix IV: Summary of the information for 2009**

| Firm | Activity | Board members | Insiders | Outsiders: Share capital | Outsiders: Independent | Other outsiders | Interlocks provided by insiders | Interlocks provided by outsiders |
|---|---|---|---|---|---|---|---|---|
| CORPORACIÓN FINANCIERA ALBA, S.A. | Portfolio and Holding | 12 | 4 | 4 | 4 | 0 | 6 | 7 |
| CRITERIA CAIXACORP, S.A. | Portfolio and Holding | 16 | 2 | 8 | 5 | 1 | 1 | 11 |
| DESARROLLOS ESPECIALES DE SISTEMAS DE ANCLAJES, S.A. | Mineral / Metals / Processing | 7 | 1 | 4 | 2 | 0 | 0 | 0 |
| DINAMIA CAPITAL PRIVADO, S.A., SCR | Portfolio and Holding | 9 | 0 | 4 | 4 | 1 | 0 | 9 |
| DOGI INTERNATIONAL FABRICS, S.A. | Textile / Clothing / Footwear | 8 | 3 | 2 | 2 | 1 | 0 | 1 |
| DURO FELGUERA, S.A. | Engineering and Other | 11 | 2 | 6 | 3 | 0 | 0 | 0 |
| EBRO FOODS, S.A. | Food & Beverage | 14 | 2 | 7 | 4 | 1 | 0 | 3 |
| ECCOWOOD INVEST, S.A. | Agriculture and fisheries | 9 | 1 | 8 | 0 | 0 | 0 | 0 |
| ELECNOR, S.A. | Equipment goods | 11 | 1 | 10 | 0 | 0 | 0 | 1 |
| ENAGÁS, S.A. | Electricity and Gas | 16 | 1 | 6 | 8 | 1 | 0 | 4 |
| ENDESA, S.A. | Electricity and Gas | 9 | 2 | 4 | 3 | 0 | 1 | 3 |
| ERCROS, S.A. | Chemical Industry | 5 | 1 | 0 | 3 | 1 | 0 | 2 |
| EXIDE TECHNOLOGIES, S.A. | Equipment goods | 3 | 0 | 3 | 0 | 0 | 0 | 0 |
| FAES FARMA, S.A. | Pharmaceutical Products | 10 | 3 | 4 | 3 | 0 | 0 | 4 |
| FCC, FOMENTO DE CONSTRUCCIONES Y CONTRATAS, S.A. | Construction | 20 | 2 | 13 | 5 | 0 | 0 | 7 |
| GRUPO FERROVIAL, S.A. | Construction | 12 | 3 | 2 | 7 | 0 | 1 | 10 |

**Appendix IV: Summary of the information for 2009**

| Firm | Activity | Board members | Insiders | Outsiders: Share capital | Outsiders: Independent | Other outsiders | Interlocks provided by insiders | Interlocks provided by outsiders |
|---|---|---|---|---|---|---|---|---|
| FERSA ENERGIAS RENOVABLES, S.A. | Renewable Energy | 12 | 3 | 6 | 3 | 0 | 0 | 0 |
| FINANZAS E INVERSIONES VALENCIANAS, S.A. | Real Estate and Other | 4 | 0 | 1 | 3 | 0 | 0 | 2 |
| FLUIDRA, S.A. | Engineering and Other | 10 | 1 | 6 | 3 | 0 | 0 | 0 |
| FUNESPAÑA, S.A. | Other Services | 8 | 2 | 2 | 4 | 0 | 0 | 0 |
| GAESCO HOLDING, S.A. | Investment Funds | 12 | 1 | 8 | 0 | 3 | 0 | 0 |
| GAMESA CORPORACIÓN TECNOLÓGICA, S.A. | Equipment goods | 10 | 2 | 3 | 4 | 1 | 1 | 9 |
| GAS NATURAL SDG, S.A. | Electricity and Gas | 17 | 2 | 9 | 6 | 0 | 2 | 7 |
| GENERAL DE ALQUILER DE MAQUINARIA, S.A. | Engineering and Other | 14 | 2 | 8 | 2 | 2 | 0 | 9 |
| GESTEVISIÓN TELECINCO, S.A. | Communicatio n Media and Advertising | 15 | 4 | 5 | 6 | 0 | 0 | 8 |
| GRIFOLS, S.A. | Pharmaceutica l Products | 9 | 3 | 1 | 4 | 1 | 0 | 1 |
| GRUPO CATALANA OCCIDENTE, S.A. | Insurance | 14 | 2 | 12 | 0 | 0 | 0 | 0 |
| GRUPO EMPRESARIAL ENCE, S.A. | Paper and printing | 14 | 2 | 6 | 5 | 1 | 2 | 9 |
| GRUPO EMPRESARIAL SAN JOSE, S.A. | Construction | 10 | 4 | 0 | 2 | 4 | 0 | 0 |
| GRUPO TAVEX, S.A. | Textile / Clothing / Footwear | 12 | 0 | 9 | 2 | 1 | 0 | 6 |
| IBERDROLA RENOVABLES, S.A. | Renewable Energy | 15 | 1 | 8 | 6 | 0 | 0 | 4 |
| IBERDROLA, S.A. | Electricity and Gas | 15 | 1 | 2 | 12 | 0 | 1 | 11 |
| IBERIA LÍNEAS AÉREAS DE ESPAÑA, S.A. | Transport / Distribution | 12 | 2 | 5 | 4 | 1 | 0 | 6 |

| Firm | Activity | Board members | Insiders | Outsiders: Share capital | Outsiders: Independent | Other outsiders | Interlocks provided by insiders | Interlocks provided by outsiders |
|---|---|---|---|---|---|---|---|---|
| IBERPAPEL GESTION, S.A. | Paper and printing | 7 | 1 | 2 | 4 | 0 | 1 | 1 |
| INBESOS, S.A. | Real Estate and Other | 8 | 3 | 1 | 4 | 0 | 0 | 0 |
| INDITEX, INDUSTRIA DE DISEÑO TEXTIL, S.A. | Textile / Clothing / Footwear | 9 | 3 | 1 | 4 | 1 | 1 | 4 |
| INDO INTERNACIONAL, S.A. | Other Consumer Goods | 9 | 1 | 6 | 2 | 0 | 0 | 4 |
| INDRA SISTEMAS, S.A. | Electronics / Software | 15 | 2 | 6 | 7 | 0 | 1 | 10 |
| INMOBILIARIA COLONIAL, S.A. | Real Estate and Other | 11 | 3 | 4 | 2 | 2 | 0 | 1 |
| INMOBILIARIA DEL SUR, S.A. | Real Estate and Other | 19 | 2 | 11 | 6 | 0 | 0 | 0 |
| INMOFIBAN, S.A. | Real Estate and Other | 4 | 3 | 0 | 1 | 0 | 0 | 0 |
| INMOLEVANTE, S.A. | Real Estate and Other | 5 | 1 | 1 | 2 | 1 | 0 | 0 |
| INVERFIATC, S.A. | Other Services | 10 | 2 | 5 | 3 | 0 | 0 | 1 |
| INVERPYME, SCR, S.A. | Portfolio and Holding | 6 | 0 | 4 | 1 | 1 | 0 | 0 |
| INYPSA INFORMES Y PROYECTOS, S.A. | Engineering and Other | 9 | 0 | 6 | 3 | 0 | 0 | 4 |
| JAZZTEL, PLC. | Telecommunications and Other | 9 | 1 | 2 | 6 | 0 | 0 | 0 |
| LA SEDA DE BARCELONA, S.A. | Chemical Industry | 5 | 2 | 2 | 1 | 0 | 0 | 2 |
| LABORATORIOS FARMACEUTICOS ROVI, S.A. | Pharmaceutical Products | 8 | 4 | 1 | 3 | 0 | 0 | 3 |
| LIBERTAS 7, S.A. | Real Estate and Other | 9 | 1 | 3 | 4 | 1 | 1 | 1 |

**Appendix IV: Summary of the information for 2009**

| Firm | Activity | Board members | Insiders | Outsiders: Share capital | Outsiders: Independent | Other outsiders | Interlocks provided by insiders | Interlocks provided by outsiders |
|---|---|---|---|---|---|---|---|---|
| LINGOTES ESPECIALES, S.A. | Mineral / Metals / Processing | 12 | 3 | 9 | 0 | 0 | 0 | 0 |
| LIWE ESPAÑOLA, S.A. | Textile / Clothing / Footwear | 5 | 3 | 0 | 0 | 2 | 0 | 0 |
| MAPFRE, S.A. | Insurance | 24 | 7 | 10 | 7 | 0 | 0 | 2 |
| MARTINSA-FADESA, S.A. | Real Estate and Other | 8 | 1 | 6 | 1 | 0 | 0 | 1 |
| MECALUX, S.A. | Equipment Manufacturing | 11 | 3 | 6 | 2 | 0 | 0 | 9 |
| METROVACESA, S.A. | Real Estate and Other | 11 | 1 | 7 | 2 | 1 | 1 | 4 |
| MINERALES Y PRODUCTOS DERIVADOS, S.A. | Mineral / Metals / Processing | 7 | 2 | 5 | 0 | 0 | 0 | 0 |
| MIQUEL Y COSTAS & MIQUEL, S.A. | Paper and printing | 10 | 2 | 4 | 3 | 1 | 2 | 27 |
| MONTEBALITO, S.A. | Renewable Energy | 8 | 0 | 6 | 2 | 0 | 0 | 0 |
| NATRA, S.A. | Food & Beverage | 9 | 1 | 7 | 1 | 0 | 0 | 4 |
| NATRACEUTICAL, S.A. | Pharmaceutical Products | 8 | 2 | 5 | 1 | 0 | 0 | 4 |
| NH HOTELES, S.A. | Leisure / Travel / Hospitality | 13 | 1 | 7 | 4 | 1 | 1 | 6 |
| NICOLAS CORREA, S.A. | Equipment goods | 7 | 2 | 3 | 2 | 0 | 0 | 0 |
| OHL, OBRASCÓN HUARTE LAÍN, S.A. | Construction | 12 | 1 | 6 | 4 | 1 | 0 | 3 |
| PAPELES Y CARTONES DE EUROPA, S.A. | Paper and printing | 10 | 4 | 3 | 2 | 1 | 0 | 1 |
| PESCANOVA, S.A. | Food & Beverage | 13 | 1 | 10 | 2 | 0 | 0 | 12 |
| PLARREGA INVEST 2000, S.A. | Real Estate and Other | 3 | 1 | 1 | 1 | 0 | 0 | 0 |

**Appendix IV: Summary of the information for 2009**

| Firm | Activity | Board members | Insiders | Outsiders: Share capital | Outsiders: Independent | Other outsiders | Interlocks provided by insiders | Interlocks provided by outsiders |
|---|---|---|---|---|---|---|---|---|
| PRIM, S.A. | Pharmaceutical Products | 6 | 3 | 1 | 2 | 0 | 0 | 0 |
| PROMOTORA DE INFORMACIONES, S.A. | Communication Media and Advertising | 14 | 5 | 6 | 3 | 0 | 6 | 17 |
| PROSEGUR, COMPAÑÍA DE SEGURIDAD, S.A. | Other Services | 8 | 2 | 3 | 2 | 1 | 2 | 4 |
| PULEVA BIOTECH, S.A. | Biotechnology | 12 | 0 | 9 | 3 | 0 | 0 | 9 |
| REALIA BUSINESS, S.A. | Real Estate and Other | 14 | 2 | 9 | 3 | 0 | 0 | 11 |
| RED ELÉCTRICA CORPORACIÓN, S.A. | Electricity and Gas | 10 | 1 | 3 | 6 | 0 | 0 | 1 |
| RENTA 4 SERVICIOS DE INVERSION, S.A. | Investment Services | 9 | 3 | 0 | 5 | 1 | 0 | 0 |
| RENTA CORPORACION REAL ESTATE, S.A. | Real Estate and Other | 10 | 4 | 1 | 3 | 2 | 0 | 0 |
| REPSOL YPF, S.A. | Oil | 16 | 2 | 6 | 8 | 0 | 2 | 18 |
| REYAL URBIS, S.A. | Real Estate and Other | 9 | 3 | 3 | 3 | 0 | 0 | 3 |
| RUSTICAS, S.A. | Real Estate and Other | 7 | 3 | 1 | 0 | 3 | 0 | 0 |
| S.A. RONSA | Portfolio and Holding | 4 | 2 | 1 | 0 | 1 | 2 | 0 |
| SACYR VALLEHERMOSO, S.A. | Construction | 13 | 2 | 10 | 1 | 0 | 1 | 8 |
| SERVICE POINT SOLUTIONS, S.A. | Retail | 10 | 2 | 5 | 3 | 0 | 1 | 3 |
| SNIACE, S.A. | Textile / Clothing / Footwear | 9 | 2 | 2 | 5 | 0 | 0 | 0 |
| SOCIEDAD ANÓNIMA DAMM | Food & Beverage | 7 | 1 | 6 | 0 | 0 | 4 | 0 |
| SOCIEDAD ANONIMA HULLERA VASCO-LEONESA | Mineral / Metals / Processing | 7 | 3 | 0 | 1 | 3 | 0 | 0 |
| SOCIEDAD GENERAL DE AGUAS DE BARCELONA, S.A. | Water and other | 13 | 2 | 9 | 2 | 0 | 2 | 5 |

**Appendix IV: Summary of the information for 2009**

| Firm | Activity | Board members | Insiders | Outsiders: Share capital | Outsiders: Independent | Other outsiders | Interlocks provided by insiders | Interlocks provided by outsiders |
|---|---|---|---|---|---|---|---|---|
| SOL MELIÁ, S.A. | Leisure / Travel / Hospitality | 12 | 3 | 3 | 6 | 0 | 0 | 6 |
| SOLARIA ENERGIA Y MEDIOAMBIENTE, S.A. | Renewable Energy | 5 | 2 | 1 | 2 | 0 | 0 | 0 |
| SOS CORPORACION ALIMENTARIA, S.A. | Food & Beverage | 15 | 3 | 9 | 1 | 2 | 0 | 4 |
| SOTOGRANDE, S.A. | Real Estate and Other | 8 | 0 | 5 | 3 | 0 | 0 | 2 |
| TÉCNICAS REUNIDAS, S.A. | Engineering and Other | 10 | 2 | 4 | 4 | 0 | 0 | 3 |
| TECNOCOM, TELECOMUNICACIONES Y ENERGIA, S.A. | Electronics / Software | 10 | 2 | 5 | 3 | 0 | 1 | 6 |
| TELEFÓNICA, S.A. | Telecommunic ations and Other | 17 | 3 | 4 | 8 | 2 | 0 | 7 |
| TESTA INMUEBLES EN RENTA, S.A. | Real Estate and Other | 11 | 2 | 6 | 3 | 0 | 0 | 10 |
| TUBACEX, S.A. | Mineral / Metals / Processing | 12 | 1 | 5 | 6 | 0 | 1 | 7 |
| TUBOS REUNIDOS, S.A. | Mineral / Metals / Processing | 11 | 1 | 6 | 2 | 2 | 0 | 3 |
| UNION CATALANA DE VALORES, S.A. | Portfolio and Holding | 5 | 1 | 4 | 0 | 0 | 1 | 0 |
| UNION EUROPEA DE INVERSIONES, S.A. | Portfolio and Holding | 9 | 1 | 5 | 3 | 0 | 0 | 2 |
| UNIPAPEL, S.A. | Paper and printing | 10 | 2 | 8 | 0 | 0 | 1 | 5 |
| URALITA, S.A. | Building materials | 12 | 4 | 5 | 3 | 0 | 0 | 2 |
| URBAR INGENIEROS, S.A. | Engineering and Other | 6 | 2 | 1 | 2 | 1 | 0 | 0 |
| URBAS GUADAHERMOSA, S.A. | Real Estate and Other | 9 | 1 | 2 | 3 | 3 | 0 | 0 |

**Appendix IV: Summary of the information for 2009**

| Firm | Activity | Board members | Insiders | Outsiders: Share capital | Outsiders: Independent | Other outsiders | Interlocks provided by insiders | Interlocks provided by outsiders |
|---|---|---|---|---|---|---|---|---|
| VERTICE TRESCIENTOS SESENTA GRADOS, S.A. | Communication Media and Advertising | 10 | 1 | 5 | 4 | 0 | 0 | 4 |
| VIDRALA, S.A. | Other Consumer Goods | 10 | 0 | 7 | 3 | 0 | 0 | 1 |
| VISCOFAN, S.A. | Food & Beverage | 8 | 1 | 6 | 1 | 0 | 1 | 4 |
| VOCENTO, S.A. | Communication Media and Advertising | 16 | 1 | 11 | 3 | 1 | 0 | 3 |
| VUELING AIRLINES, S.A. | Transport / Distribution | 12 | 0 | 7 | 4 | 1 | 0 | 3 |
| ZARDOYA OTIS, S.A. | Equipment goods | 9 | 1 | 6 | 2 | 0 | 0 | 5 |
| ZELTIA, S.A. | Pharmaceutical Products | 11 | 2 | 4 | 4 | 1 | 1 | 4 |

# Appendix V: List of board members who were former government officials for 2004

| Name | Firm | Activity | Capitalisation | Former government officials |
|---|---|---|---|---|
| ABEL MATUTES JUAN | BANCO SANTANDER CENTRAL HISPANO, S.A. | Banking | IBEX 35 | Minister |
| ALFREDO PASTOR BODMER | SOL MELIA S.A. | Leisure, tourism and hospitality | Group 1 | Secretary of State |
| ANTONIO DEL VALLE MENENDEZ | SOCIEDAD ANONIMA HULLERA VASCO-LEONESA | Oil, Gas and other sources | Group 4 | Parliament |
| ANTONIO MASA GODOY | IBERIA LÍNEAS AÉREAS DE ESPAÑA, S.A. | Transport and distribution | IBEX 35 | Parliament |
| ANTONIO SOTILLO MARTI | TAVEX ALGODONERA, S.A. | Textile, clothing and footwear | Group 4 | Parliament |
| ANTONIO ZABALZA MARTÍ | ERCROS, S.A. | Chemical industry | Group 4 | Secretary of State |
| CARLES GASÒLIBA BÖHM | MIQUEL Y COSTAS & MIQUEL, S.A. | Paper and graphic arts | Group 4 | Senate |
| CARLOS ALFONSO GILA GONZALEZ | ESPAÑOLA DEL ZINC, S.A. | Metals | Group 4 | Parliament |
| CARLOS PÉREZ DE BRICIO OLARIAGA | COMPAÑÍA ESPAÑOLA DE PETRÓLEOS, SOCIEDAD ANÓNIMA | Oil, Gas and other sources | Group 1 | Minister |
| CARLOS PÉREZ DE BRICIO OLARIAGA | COMPAÑIA LOGISTICA DE HIDROCARBUROS CLH, S.A. | Transport and distribution | Group 4 | Minister |
| EDUARDO PUNSET CASALS | SOL MELIA S.A. | Leisure, tourism and hospitality | Group 1 | Minister |
| ESTANISLAO RODRÍGUEZ-PONGA SALAMANCA | TESTA INMUEBLES EN RENTA, S.A | Real estate | Group 1 | Secretary of State |
| FERNANDO ABRIL-MARTORELL HERNÁNDEZ | CINTRA CONCESIONES DE INFRAESTRUCTURAS DE TRANSPORTE, S.A. | Parking and highways | Group 1 | Minister |

**Appendix V: List of board members who were former government officials for 2004**

| Name | Firm | Activity | Capitalisation | Former government officials |
|---|---|---|---|---|
| FRANCISCO JAVIER DE IRIZAR ORTEGA | URBANIZACIONES Y TRANSPORTES, S.A. | Real estate | Group 4 | Senate |
| FRANCISCO RUIZ RISUEÑO | CORPORACIÓN MAPFRE, S.A. | Insurance | IBEX 35 | Senate |
| GUILLERMO DE LA DEHESA ROMERO | BANCO SANTANDER CENTRAL HISPANO, S.A. | Banking | IBEX 35 | Secretary of State |
| GUILLERMO DE LA DEHESA ROMERO | UNION FENOSA, S.A. | Electricity | IBEX 35 | Secretary of State |
| GUILLERMO DE LA DEHESA ROMERO | CAMPOFRIO ALIMENTACIÓN, S.A. | Food | Group 2 | Secretary of State |
| GUILLERMO DE LA DEHESA ROMERO | TELE PIZZA, S.A. | Food and beverage | Group 3 | Secretary of State |
| IGNACIO BAYÓN MARINÉ | REPSOL YPF S.A. | Oil, Gas and other sources | IBEX 35 | Minister |
| JAIME CARVAJAL URQUIJO | GRUPO FERROVIAL S.A. | Construction | IBEX 35 | Senate |
| JAVIER GÓMEZ-NAVARRO NAVARRETE | SOGECABLE S.A. | Advertising, press and R.T.V. | IBEX 35 | Minister |
| JOAQUIM MOLINS I AMAT | JAZZTEL P.L.C. | Telecommunications | Group 2 | Parliament |
| JOAQUIM MOLINS I AMAT | CEMENTOS MOLINS S.A. | Construction materials | Group 3 | Parliament |
| JOSÉ LUIS DEL VALLE PÉREZ | ACS, ACTIVIDADES DE CONSTRUCCIÓN Y SERVICIOS S.A. | Construction | IBEX 35 | Parliament |
| JOSÉ LUIS LEAL MALDONADO | COMPAÑÍA ESPAÑOLA DE PETRÓLEOS, SOCIEDAD ANÓNIMA | Oil, Gas and other sources | Group 1 | Minister |
| JOSÉ MANUEL FERNÁNDEZ NORNIELLA | ENAGÁS, S.A. | Oil, Gas and other sources | IBEX 35 | Parliament |
| JOSÉ MANUEL FERNÁNDEZ NORNIELLA | ENDESA, S.A. | Electricity | IBEX 35 | Parliament |

**Appendix V: List of board members who were former government officials for 2004**

| Name | Firm | Activity | Capitalisation | Former government officials |
|---|---|---|---|---|
| JOSÉ MANUEL FERNÁNDEZ NORNIELLA | IBERIA LÍNEAS AÉREAS DE ESPAÑA, S.A. | Transport and distribution | IBEX 35 | Parliament |
| JOSÉ MANUEL FERNÁNDEZ NORNIELLA | EBRO PULEVA, S.A. | Food | Group 1 | Parliament |
| JOSÉ MANUEL SERRA PERIS | RED ELÉCTRICA DE ESPAÑA, S.A. | Electricity | Group 1 | Secretary of State |
| JOSÉ MANUEL SERRA PERIS | GRUPO EMPRESARIAL ENCE, S.A. | Paper, wood and chemical | Group 2 | Secretary of State |
| JOSÉ MANUEL SERRA PERIS | URALITA S.A. | Construction materials | Group 2 | Secretary of State |
| JOSÉ MANUEL SERRA PERIS | NATRACEUTICAL, S.A. | Pharmaceuticals | Group 4 | Secretary of State |
| JOSE MARÍA LAFUENTE LÓPEZ | SOL MELIA S.A. | Leisure, tourism and hospitality | Group 1 | Senate |
| JOSÉ PEDRO PÉREZ-LLORCA | IBERIA LÍNEAS AÉREAS DE ESPAÑA, S.A. | Transport and distribution | IBEX 35 | Minister |
| JOSE RAMON ALVAREZ RENDUELES | GESTEVISIÓN TELECINCO, S.A. | Advertising, press and R.T.V. | IBEX 35 | Secretary of State |
| JUAN ANTONIO ORTEGA Y DÍAZ - AMBRONA | COMPAÑIA LOGISTICA DE HIDROCARBUROS CLH, S.A. | Transport and distribution | Group 4 | Minister |
| JUAN CARLOS GUERRA ZUNZUNEGUI | CARTERA HOTELERA, S.A. | Portfolio and Holding | Group 4 | Senate |
| JUAN MIGUEL VILLAR MIR | OBRASCÓN HUARTE LAIN, S.A. | Construction | Group 2 | Minister |
| JUAN PEDRO HERNÁNDEZ MOLTÓ | METROVACESA, S.A. | Real Estate | IBEX 35 | Parliament |
| JUAN RAMÓN QUINTÁS SEOANE | ENDESA, S.A. | Electricity | IBEX 35 | Parliament |

**Appendix V: List of board members who were former government officials for 2004**

| Name | Firm | Activity | Capitalisation | Former government officials |
|---|---|---|---|---|
| JULIÁN GARCÍA VARGAS | AVANZIT, S.A. | Telecommunications | Group 4 | Minister |
| LUIS CARLOS CROISSIER BATISTA | JAZZTEL P.L.C. | Telecommunications | Group 2 | Minister |
| LUIS CARLOS CROISSIER BATISTA | ADOLFO DOMÍNGUEZ S.A. | Textile, clothing and footwear | Group 4 | Minister |
| LUIS MARÍA ATIENZA SERNA | RED ELÉCTRICA DE ESPAÑA, S.A. | Electricity | Group 1 | Minister |
| LUIS SOLANA MADARIAGA | AMPER, S.A. | Electronics and software | Group 4 | Parliament |
| Manuel Varela Uña | PROMOTORA DE INFORMACIONES, S.A. | Advertising, press and R.T.V. | IBEX 35 | Secretary of State |
| MARCELINO OREJA AGUIRRE | ACERINOX, S.A. | Metals | IBEX 35 | Minister |
| MARCELINO OREJA AGUIRRE | FOMENTO DE CONSTRUCCIONES Y CONTRATAS, S.A. | Construction | IBEX 35 | Minister |
| MARCELINO OREJA AGUIRRE | REPSOL YPF S.A. | Oil, Gas and other sources | IBEX 35 | Minister |
| MATIAS PEDRO RODRÍGUEZ INCIARTE | BANCO ESPAÑOL DE CREDITO, S.A. | Banking | IBEX 35 | Minister |
| MATIAS PEDRO RODRÍGUEZ INCIARTE | BANCO SANTANDER CENTRAL HISPANO, S.A. | Banking | IBEX 35 | Minister |
| MIGUEL ÁNGEL PLANAS SEGURADO | CIE AUTOMOTIVE, S.A. | Metals | Group 3 | Parliament |
| MIGUEL BOYER SALVADOR | COMPAÑIA LOGISTICA DE HIDROCARBUROS CLH, S.A. | Transport and distribution | Group 4 | Minister |
| MIGUEL ROCA JUNYENT | ACS, ACTIVIDADES DE CONSTRUCCIÓN Y SERVICIOS S.A. | Construction | IBEX 35 | Parliament |

**Appendix V: List of board members who were former government officials for 2004**

| Name | Firm | Activity | Capitalisation | Former government officials |
|---|---|---|---|---|
| MIGUEL SANMARTIN LOSADA | BANCO PASTOR, S.A. | Banking | Group 1 | Parliament |
| PEDRO ANTONIO MARTÍN MARÍN | ANTENA 3 DE TELEVISION, S.A. | Advertising, press and R.T.V. | Group 1 | Parliament |
| PEDRO PÉREZ FERNÁNDEZ | TESTA INMUEBLES EN RENTA, S.A | Real estate | Group 1 | Secretary of State |
| PÍO CABANILLAS ALONSO | ALDEASA, S.A. | Retail | Group 2 | Minister |
| RODOLFO MARTÍN VILLA | SOGECABLE S.A. | Advertising, press and R.T.V. | IBEX 35 | Minister |

# Appendix VI: List of board members who were former government officials for 2009

| Name | Firm | Activity | Capitalisation | Former government officials |
|---|---|---|---|---|
| ABEL MATUTES JUAN | BANCO SANTANDER, S.A. | Banks / Savings | IBEX 35 | Minister |
| ALFREDO PASTOR BODMER | SOL MELIÁ, S.A. | Leisure / Travel / Hospitality | Group 1 | Secretary of State |
| ANTONIO DIEGO MASA GODOY | IBERIA LINEAS AEREAS DE ESPAÑA, S.A. | Transport / Distribution | IBEX 35 | Parliament |
| ANTONIO ZABALZA MARTI | ERCROS, S.A. | Chemical Industry | Group 4 | Secretary of State |
| CARLES-ALFRED GASÒLIBA BÖHM | MIQUEL Y COSTAS & MIQUEL, S.A. | Paper and printing | Group 4 | Senate |
| CARLOS PÉREZ DE BRICIO OLARIAGA | BANCO ESPAÑOL DE CREDITO, S.A. | Banks / Savings | IBEX 35 | Minister |
| CARMEN CALLEJA DE PABLO | INYPSA INFORMES Y PROYECTOS, S.A. | Engineering and Other | Group 4 | Parliament |
| EDUARDO PUNSET CASALS | SOL MELIÁ, S.A. | Leisure / Travel / Hospitality | Group 1 | Minister |
| EDUARDO SERRA REXACH | ZELTIA, S.A. | Pharmaceutical Products | Group 2 | Minister |
| ENRIQUE LACALLE COLL | FERSA ENERGIAS RENOVABLES, S.A. | Renewable Energy | Group 3 | Parliament |
| ENRIQUE MARTÍNEZ ROBLES | ENAGAS, S.A. | Electricity and Gas | IBEX 35 | Secretary of State |
| ESTANISLAO RODRÍGUEZ-PONGA Y SALAMANCA | INDRA SISTEMAS, S.A. | Electronics / Software | IBEX 35 | Secretary of State |
| ESTANISLAO RODRÍGUEZ-PONGA Y SALAMANCA | TESTA INMUEBLES EN RENTA, S.A. | Real Estate and Other | Group 2 | Secretary of State |
| FERNANDO ABRIL-MARTORELL HERNÁNDEZ | GRUPO EMPRESARIAL ENCE, S.A. | Paper and printing | Group 3 | Minister |

**Appendix VI: List of board members who were former government officials for 2009**

| Name | Firm | Activity | Capitalisation | Former government officials |
|---|---|---|---|---|
| FRANCISCO RUIZ RISUEÑO | MAPFRE, S.A. | Insurance | IBEX 35 | Senate |
| GUILLERMO DE LA DEHESA ROMERO | BANCO SANTANDER, S.A. | Banks / Savings | IBEX 35 | Secretary of State |
| GUILLERMO DE LA DEHESA ROMERO | CAMPOFRIO FOOD GROUP, S.A. | Food & Beverage | Group 2 | Secretary of State |
| IGNACIO BAYÓN MARINÉ | REALIA BUSINESS, S.A. | Real Estate and Other | Group 3 | Minister |
| ISABEL TOCINO BISCAROLASAGA | BANCO SANTANDER, S.A. | Banks / Savings | IBEX 35 | Minister |
| JAIME CARVAJAL URQUIJO | FERROVIAL, S.A. | Construction | IBEX 35 | Senate |
| JAVIER GÓMEZ-NAVARRO NAVARRETE | TECNICAS REUNIDAS, S.A. | Engineering and Other | IBEX 35 | Minister |
| JESÚS ACÍN BONED | INBESOS, S.A. | Real Estate and Other | Group 3 | Parliament |
| JESÚS QUERO MOLINA | FERSA ENERGIAS RENOVABLES, S.A. | Renewable Energy | Group 3 | Senate |
| JOAQUIM MOLINS I AMAT | CEMENTOS MOLINS, S.A. | Building materials | Group 2 | Parliament |
| JOSE BORRELL FONTELLÉS | ABENGOA, S.A. | Engineering and Other | IBEX 35 | Minister |
| JOSÉ FOLGADO BLANCO | RED ELECTRICA CORPORACION, S.A. | Electricity and Gas | IBEX 35 | Parliament |
| JOSÉ LLADÓ FERNÁNDEZ-URRUTIA | TECNICAS REUNIDAS, S.A. | Engineering and Other | IBEX 35 | Minister |
| JOSE LUIS DEL VALLE PÉREZ | ACS, ACTIVIDADES DE CONSTRUCCION Y SERVICIOS, S.A. | Construction | IBEX 35 | Parliament |
| JOSE MANUEL FERNANDEZ NORNIELLA | IBERIA LINEAS AEREAS DE ESPAÑA, S.A. | Transport / Distribution | IBEX 35 | Parliament |

**Appendix VI: List of board members who were former government officials for 2009**

| Name | Firm | Activity | Capitalisation | Former government officials |
|---|---|---|---|---|
| JOSE MANUEL OTERO NOVAS | COMPAÑIA ESPAÑOLA DE PETROLEOS, S.A. | Oil | Group 1 | Minister |
| JOSÉ MANUEL SERRA PERIS | CORPORACIÓN FINANCIERA ALBA, S.A. | Portfolio and Holding | Group 1 | Secretary of State |
| JOSÉ MANUEL SERRA PERIS | GRUPO EMPRESARIAL ENCE, S.A. | Paper and printing | Group 3 | Secretary of State |
| JOSÉ MANUEL SERRA PERIS | NATRACEUTICAL, S.A. | Pharmaceutical Products | Group 4 | Secretary of State |
| JOSÉ MANUEL SERRA PERIS | MARTINSA-FADESA, S.A. | Real Estate and Other | Group 4 | Secretary of State |
| JOSÉ MARÍA LAFUENTE LÓPEZ | SOL MELIÁ, S.A. | Leisure / Travel / Hospitality | Group 1 | Senate |
| JOSE PEDRO PÉREZ LLORCA | IBERIA LINEAS AEREAS DE ESPAÑA, S.A. | Transport / Distribution | IBEX 35 | Minister |
| JOSE RAMON ALVAREZ RENDUELES | GESTEVISION TELECINCO, S.A. | Communication Media and Advertising | IBEX 35 | Secretary of State |
| JOSEBA ANDONI AURREKOETXEA BERGARA | ENAGAS, S.A. | Electricity and Gas | IBEX 35 | Senate |
| JOSEP PIQUE CAMPS | VUELING AIRLINES, S.A. | Transport / Distribution | Group 3 | Minister |
| JUAN MIGUEL VILLAR MIR | OBRASCON HUARTE LAIN, S.A. | Construction | IBEX 35 | Minister |
| LUIS CARLOS CROISSIER BATISTA | REPSOL YPF, S.A. | Oil | IBEX 35 | Minister |
| LUIS CARLOS CROISSIER BATISTA | TESTA INMUEBLES EN RENTA, S.A. | Real Estate and Other | Group 2 | Minister |
| LUIS CARLOS CROISSIER BATISTA | ADOLFO DOMINGUEZ, S.A. | Textile / Clothing / Footwear | Group 4 | Minister |
| LUIS DE GUINDOS JURADO | ENDESA, S.A. | Electricity and Gas | IBEX 35 | Secretary of State |

**Appendix VI: List of board members who were former government officials for 2009**

| Name | Firm | Activity | Capitalisation | Former government officials |
|---|---|---|---|---|
| LUIS MARÍA ATIENZA SERNA | RED ELECTRICA CORPORACION, S.A. | Electricity and Gas | IBEX 35 | Minister |
| MARCELINO OREJA AGUIRRE | FOMENTO DE CONSTRUCCIONES Y CONTRATAS, S.A. | Construction | IBEX 35 | Minister |
| MARÍA ARANZAZU MENDIZÁBAL GOROSTIAGA | RED ELECTRICA CORPORACION, S.A. | Electricity and Gas | IBEX 35 | Parliament |
| MARÍA DE LOS ANGELES AMADOR MILLAN | RED ELECTRICA CORPORACION, S.A. | Electricity and Gas | IBEX 35 | Minister |
| MARÍA JOSE ELICES MARCOS | AVANZIT, S.A. | Telecommunications and Other | Group 4 | Senate |
| MATIAS PEDRO RODRÍGUEZ INCIARTE | BANCO ESPAÑOL DE CREDITO, S.A. | Banks / Savings | IBEX 35 | Minister |
| MATIAS PEDRO RODRÍGUEZ INCIARTE | BANCO SANTANDER, S.A. | Banks / Savings | IBEX 35 | Minister |
| MIGUEL ÁNGEL PLANAS SEGURADO | CIE AUTOMOTIVE, S.A. | Mineral / Metals / Processing | Group 3 | Parliament |
| MIGUEL BOYER SALVADOR | REYAL URBIS, S.A. | Real Estate and Other | Group 2 | Minister |
| MIGUEL ROCA JUNYENT | ACS, ACTIVIDADES DE CONSTRUCCION Y SERVICIOS, S.A. | Construction | IBEX 35 | Parliament |
| MIGUEL ROCA JUNYENT | ENDESA, S.A. | Electricity and Gas | IBEX 35 | Parliament |
| MIGUEL SALINAS MOYA | SOS CORPORACION ALIMENTARIA, S.A. | Food & Beverage | Group 3 | Parliament |
| MIGUEL SANMARTIN LOSADA | BANCO PASTOR, S.A. | Banks / Savings | Group 1 | Parliament |
| NARCIS SERRA SERRA | GAS NATURAL SDG, S.A. | Electricity and Gas | IBEX 35 | Minister |
| NICOLÁS REDONDO TERREROS | FOMENTO DE CONSTRUCCIONES Y CONTRATAS, S.A. | Construction | IBEX 35 | Parliament |

**Appendix VI: List of board members who were former government officials for 2009**

| Name | Firm | Activity | Capitalisation | Former government officials |
|---|---|---|---|---|
| PASCUAL FERNANDEZ MARTINEZ | GAMESA CORPORACION TECNOLOGICA, S.A. | Equipment goods | IBEX 35 | Secretary of State |
| PASCUAL FERNANDEZ MARTINEZ | GRUPO EMPRESARIAL ENCE, S.A. | Paper and printing | Group 3 | Secretary of State |
| PEDRO JESUS MEJIA GOMEZ | VUELING AIRLINES, S.A. | Transport / Distribution | Group 3 | Secretary of State |
| RAFAEL ESCUREDO RODRÍGUEZ | BEFESA MEDIO AMBIENTE, S.A. | Engineering and Other | Group 3 | Parliament |